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OF THE

American Medical Association

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VOLUME 127, No. 3

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PUBLISHED WEEKLY

JANUARY 20, 1945

CONTENTS AND SUBJECT INDEX

The Treatment of Subacute Bacterial Endocarditis with Penicillin. Martin Henry Dawson, M.D., and T. H. Hunter, M.D., New York..... 129

The Treatment of Spondylolisthesis. Walter E. Dandy, M.D., Baltimore 137

One Stage Combined Resection of the Ribs and Spinal Fusion for Severe Scoliosis. W. H. Bickel, M.D.; John J. Hinchey, M.D., and O. Theron Clagett, M.D., Rochester, Minn. 139

Discussed by Drs. Compere, Levinthal and Bickel.

The Prevention and Attenuation of Infectious Hepatitis by Gamma Globulin. Joseph Stokes Jr., M.D., Philadelphia, and Capt. John R. Neefe, M. C., A. U. S.....144

Transmission of Primary Atypical Pneumonia to Human Volunteers. Commission on Acute Respiratory Diseases, Fort Bragg, North Carolina 146

Injuries of the Cervical Spine. A. G. Davis, M.D., Erie, Pa.....149

Discussed by Drs. Dunlop, Ghormley, Ober and Davis.

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Bicuspid Aortic Valve with Rupture of Cusp. Major William H. Flythe and Capt. James C. Wren, M. C., A. U. S.....156

A Simplified Suction Unit for Intestinal Decompression. D. J. Leithauser, M.D., Detroit.....157

Ergotamine Tartrate in the Treatment of War Neuroses. Lieut. Col. Roy R. Grinker and Major R. J. Spivey, Army Air Forces, M. C., A. U. S.....158

COUNCIL ON PHYSICAL MEDICINE 158

COUNCIL ON FOODS AND NUTRITION 159

EDITORIALS

Philadelphia Session Canceled...160

The Enrichment of Bread Should Be Continued 160

Prolonging Action of Penicillin..161

CURRENT COMMENT

The Federal Hospital Construction Program 162

More Study of Foreign Languages Needed 162

Congresses on Medical Education and Industrial Health.....162

BUREAU OF LEGAL MEDICINE AND LEGISLATION 182

(Subject Index on next page)

MEDICINE AND THE WAR

The Army 163

The Navy 164

Wartime Graduate Medical Meetings 164

Hospitals Needing Interns and Residents 164

ORGANIZATION SECTION

Annual Conference of Secretaries and Editors 165

Meeting of the California Medical Association 169

Medical Legislation 170

Washington Letter 172

Official Notes 172

1945 A.M.A. SESSION CANCELED See Editorial on page 160

Medical Clinics of North America

To doctors in both civilian and military practice, the *Medical Clinics of North America* are performing a valuable and important service. By bringing to subscribers, home and abroad, the latest, approved advances in clinical diagnosis and treatment, they constitute, in all reality, a course in postgraduate medicine—teaching from the clinics of great civilian and military hospitals by some of the foremost internists in American medicine.

Through these bimonthly books of *new* medicine, doctors are able to get quickly, authoritatively, and in minimum reading time, the very information needed to keep them abreast of current developments in medicine—developments that can be applied directly to problems met day in and day out in practice.

1945 will witness publication of some of the most useful numbers of the *Medical Clinics of North America* ever issued. For example, the January (Chicago) Number will feature a symposium on "Neuropsychiatric Diseases"; March will be devoted to "New Developments in Medicine"; May will contain *two* symposia: One on "Internal Medicine in General Practice," the other on "Rehabilitation."

Here is concrete evidence of what the *Medical Clinics* bring subscribers . . . . . and it is because of contents such as these—contents keyed to the needs of the times—that the medical profession itself terms them "the closest approach to actual postgraduate teaching to be had in print."

See also SAUNDERS Announcement—Pages 3, 4, 5

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "MI," Medicolegal; "ME," Medical Economics; "OS," Organization Section.

A. M. A. Annual Conference of Secretaries and Editors....OS-165
Annual Congress on Industrial Health..E-162
Annual Congress on Medical Education and Licensure....E-162
Philadelphia session canceled....E-160
Acid, p-aminohippuric, to prolong penicillin action....E-161
nicotinic, bread enrichment....E-160
Aid to Russia Fund, British....177
Air, reduced pressure for nasal sinusitis.ab-185
Alcoholism, electroencephalogram in....ab-185
Aluminum dust, exposure to....190
American-Belgian lectures organized....177
Ammonium chloride for boils at menstrual period....190
Animal control plan of rabies....C-181
Aorta, rupture of cusp in soldier with bicuspid aortic valve....*156
Army Industrial Hygiene Laboratory, A. J. Lanza retires from....163
Aviation, flight nurse saves patient's life...163
operational fatigue in fliers, ergotamine tartrate for....*158
Backache, spondylolisthesis....*137
Beeswax-peanut oil to prolong penicillin action....E-161
Belgian-American lectures....177
Beriberi, decrease result of bread enrichment....E-160
Beveridge Plan and B. M. A....177
Blood, albumin-globulin ratio in surgical infection....ab-184
100,000 pints needed....172
Board Examinations....183
Bones, acute manifestations of yaws....ab-186
grafts (autogenous) in severe scoliosis..*139
grafts (autogenous) in spondylolisthesis.*137
Book Notices....189
Brain electroencephalogram in alcoholism.ab-185
Bread enriched with vitamin B complex and iron....E-160
British Medical Association annual meeting.177
Browne, Robert, missing in action....164
Bureau of Investigation....181
Bureau of Legal Medicine and Legislation..182
Calcaneus, insufficiency fracture....ab-186
California Medical Association..OS-167; OS-169
Physicians Service....OS-167; OS-169
Camp, summer, infectious hepatitis in, control with gamma globulin....*144
Carbon, new deodorizing gray plaster bandage....ab-186
Cast, new deodorizing gray plaster bandage....ab-186
Celiac Disease, vitamin B complex and concentrated liver for....ab-188
Centenarians, number in U. S....190
Cerebrospinal Fluid, sulfapyrazine in children....ab-187
Cinchophen, toxicity....190
Climate, desert, effect on British Army personnel....ab-188
Cold, apply ice bag to prolong penicillin action....E-161
Colon, closure of stoma....ab-184
Commission on Acute Respiratory Diseases....*146
Conscientious objectors volunteer for transmission of primary atypical pneumonia.*146
Correspondence....181
Council on Foods and Nutrition....159
Council on Physical Medicine....158
Deaths....179
Desert climate, effect on British army personnel....ab-188
Diodrast to prolong penicillin action....E-161
Dniepropetrovsk Medical Institute....178
Dogs, rabies control....C-181
Dressings, new deodorizing gray plaster.ab-186
Army sells bandages as dusters....172
Dust, aluminum, exposure to....190
Editorials....160
Endocarditis, subacute bacterial, penicillin plus heparin for....*129
Ergotamine tartrate treatment of war neuroses....*158
Fatigue, operational, ergotamine tartrate in....*158
Foot, march fracture....ab-186
Foreign languages, more study of, needed.E-162
Foreign Letters....177
Fracture, insufficiency, of calcaneus....ab-186
march, of foot....ab-186
Frambesia, bone and joint manifestation.ab-186
Furunculosis at menstrual period....190
Gasoline "prescriptions"....172
Globulin, gamma, use in infectious hepatitis....*144
gamma, protein deficiency and surgical infection....ab-184
Government Services....176
Hawkins, Mary Louise, saves life of patient.163
Health of British nation during the war..177
Heparin plus penicillin in endocarditis..*129
Hospitals, Blue Cross plans....OS-165
care of returning casualties....163
federal construction program....E-162
needing interns....164
Ice bag prolongs penicillin action....E-161
Industrial exposure to aluminum dust....190
hygiene laboratory (Army), A. J. Lanza retires from....163
Infection, surgical, and protein deficiency.ab-184
Insurance, sickness (compulsory), Calif..OS-169
social security, 39 million Americans under....OS-172
International Committee of Military Medicine....177
Interns, hospitals needing....164
Intestines, Meckel's diverticulum, bleeding from....ab-187
simplified siphon suction unit for decompression....*157
Iron enriched bread....E-160
Jarcho Pressometer, safe to use in insufflation of oviducts....190
Joints, acute manifestations of yaws....ab-186
Languages, foreign, more study needed..E-162
Lanza, Anthony J., retires....163
Lectures, American-Belgian, organized....177
Legislation, Medical....170
Levin tube, siphon suction unit for intestinal decompression....*157
Liver, epidemic hepatitis, gamma globulin for....*144
treatment of celiac disease....ab-188
Malaria, plasmochin intoxication....ab-185
Marriages....178
Medical Education, Wartime Graduate Medical Meetings....164
Medical Examinations and Licensure....183
Medical Service plans....OS-165; OS-166
California Medical Ass'n. resolutions on.OS-169
"White Paper"....177
Medicine and the War....163
Medicolegal Abstracts....182
Meetings, Coming Meetings....171
Menstruation, boils associated with period..190
Metatarsus, insufficiency fracture....ab-186
Michigan Medical Service....OS-165
Military Medicine, International Committee of, American-Belgian lectures....177
Miller-Abbott tube, siphon suction unit for intestinal decompression....*157
Moving Pictures, depicts fitting artificial limb....164
National Service law, president asks for.OS-172
Neuroses, war, ergotamine tartrate treatment....*158
News....173
Nurse, flight, saves life of patient....163
Odors, new deodorizing gray plaster bandage....ab-186
Old Age, number of centenarians in U. S..190
Organization Section....165
Osteomyelitis, new deodorizing gray plaster bandage....ab-186
Oviducts, safe to use Jarcho pressometer in insufflation technic?....190
Paralysis, injuries of cervical spine....*149
Paratyphoid B infection....190
Peanut oil-beeswax mixture prolongs penicillin action....E-161
Pellagra, control by bread enrichment....E-160
Penicillin, prolonging action, 3 methods...E-161
treatment of endocarditis....*129
treatment of staphylococcic infections...ab-188
Peptic Ulcer in wartime....177
Pericarditis, constrictive, partial pericardiectomy and epicardiolysis....ab-184
Plasmochin intoxication....ab-185
Pneumonia, atypical primary, transmission.*146
Pneumonoconiosis, exposure to aluminum dust.190
Pressometer, Jarcho, safe to use insufflation technic of oviducts....190
Protein deficiency, relation to surgical infection....ab-184
Queries and Minor Notes....180
Rabies control plan, University City, Mo..C-181
Radio Broadcasts....172
Red Cross, British, aid to Russia....177
Respiratory diseases, acute, Commission on report....*146
Riboflavin, bread enrichment....E-160
Ribs, resected for scoliosis....*139
Roddis, L. H., heads Medical History Board.164
Russia, Aid to Russia Fund....177
Dniepropetrovsk Medical Institute restored.178
Schools, Medical, Russia....178
Sciatica, treatment of spondylolisthesis....*137
Scientific Roster helps medical world...OS-172
Sinusitis, Nasal, reduced air pressure as form of treatment....ab-185
Siphon suction unit, simplified, for intestinal decompression....*157
Social Security insurance, 39 million under....OS-172
Society Proceedings....171
Spine, cervical, injuries....*149
one stage combined resection for severe scoliosis....*139
treatment of spondylolisthesis....*137
Staphylococcus pyogenes infection, penicillin for....ab-188
State Board Examinations....183
Succinylsulfathiazole in closure of colonic stoma....ab-184
Suction unit (siphon) for intestinal decompression....*157
Sulfapyrazine use in children....ab-187
Sulfathiazole in closure of colonic stoma..ab-184
Sulfonamides, influence on postoperative complications....ab-184
Surgery, postoperative complications, sulfonamides influence on....ab-184
Thiamine, bread enrichment....E-160
Tonics and Sedatives....Adv. Page 40
UNRRA sanitary conventions signed....OS-172
U. S. Government hospital construction program....E-162
Veterans, right to former employment....MI-182
Vital Statistics, British, during the war....177
Vitamins B complex, treatment of celiac disease....ab-188
B enriched bread....E-160
Wangensteen method, suction unit for intestinal decompression....*157
War Food Administration, bread enrichment....E-160
Washington Letter....172
World War II, American-Belgian lectures...177
bandages sold as dusters....172
bicuspid aortic valve with rupture of cusp in soldier....*156
blood needed: 100,000 pints....172
Browne (R.), missing in action....164
casualties 30,000 sick and wounded brought back to this country in December....163
conscientious objectors volunteer for research on atypical pneumonia....*146
desert climate, effect on British army personnel....ab-188
film depicts fitting artificial limbs....164
flight nurse saves life of injured patient...163
foreign language study needed....E-162
gastrointestinal ulcer....177
health of British nation....177
heroes: Adamson (G. N.)....163
heroes: Beacham (E. G.)....163
heroes: Bingham (H. D.)....163
heroes: Kirtley (J. M.)....163
heroes: McKee (A. B.)....164
heroes: Pasachoff (S. S.)....163
heroes: Terranova (A. S.)....163
hospitals needing interns....164
induction of remediable 4-Fs proposed..OS-172
insufficiency fracture of calcaneus....ab-186
Lanza (A. J.) retires....163
march fracture....ab-186
Medical History Board, H. L. Roddis head of....164
nurses urgently needed....172
operational fatigue, ergotamine tartrate in.*158
postwar bread enrichment urged....E-160
Russian medical school restored....178
Russian scientists killed....178
Russians sent medical supplies by British.177
Wartime Graduate Medical Meetings....164

THE JOURNAL of the American Medical Association is published weekly by the American Medical Association. Subscription price, $8.00 a year. 25c a copy. Canadian $9.50. Foreign $12.00. Entered as second class matter June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. **Address all communications to American Medical Association, 535 N. Dearborn St., Chicago 10, Illinois.**

AN ARSENICAL WITH A BRILLIANT RECORD OF EFFECTIVENESS AND SAFETY
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PARKE, DAVIS & COMPANY DETROIT 32 MICHIGAN

The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 127, No. 3 — CHICAGO, ILLINOIS — JANUARY 20, 1945

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THE TREATMENT OF SUBACUTE BACTERIAL ENDOCARDITIS WITH PENICILLIN

RESULTS IN TWENTY CASES

MARTIN HENRY DAWSON, M.D.
AND
THOMAS H. HUNTER, M.D.
NEW YORK

The present report deals with the use of penicillin in the treatment of 20 cases of subacute bacterial endocarditis. The cases are divided chronologically into 2 groups: (1) a preliminary group of 5 cases treated in the latter part of 1942 and in 1943 and (2) a group of 15 cases treated between January and September 1944. In all instances the infecting organism was a streptococcus of either the viridans or indifferent variety.

PART I: CASES TREATED IN 1942 AND 1943

Cases selected for preliminary clinical trial showed the following characteristics: (*a*) The infection was of relatively short duration, (*b*) the patients' cardiac status and general condition were comparatively good and (*c*) the infecting organism was sensitive to penicillin in vitro. All 5 cases represented classic examples of the disease, and the diagnosis was established by several positive blood cultures on each patient. The underlying cardiac disease was rheumatic in all instances. In this preliminary group the therapeutic program was seriously handicapped by the limited amount of penicillin available. At no time was there assurance that continued supplies would be forthcoming, and from time to time it became necessary to alter the dosage schedules according to the amount of drug on hand or even to discontinue therapy entirely until further supplies were received. A preliminary report on these cases has already been presented.[1]

Brief synopses of the 5 cases follow:

CASE 1.—H. H., a woman aged 27, known to have had "endocarditis" at the age of 10, was admitted to the Presbyterian Hospital on Oct. 17, 1942, with a history of weakness, loss of weight, palpitation and low grade temperature of two months' duration. Three months previously some teeth had been extracted, and one month later the tips of several fingers became painful. Examination showed several petechiae in the mouth, a moderately enlarged heart with aortic and mitral systolic and diastolic murmurs, and a palpable spleen. Three blood cultures were positive for Streptococcus viridans with 60 to 80 colonies per cubic centimeter. Serologically the organism was a member of group F (Lancefield) and in vitro was one half as sensitive to penicillin as the standard strain of hemolytic streptococcus.[2]

Penicillin, 10,000 units every three hours intravenously, was started on October 23 and continued for six days. During this time the blood culture became sterile but the temperature remained elevated, and on November 3 the patient passed an embolus to the right femoral artery. Penicillin in the same dosage was resumed on November 5 and continued for five days. Blood cultures on November 10 and November 14 were positive. Penicillin was again started on November 17 and continued for a period of six days. Following this third course, blood cultures became negative but, because of the persistence of a low grade fever, therapy was resumed as a precautionary measure. From December 7 to December 12, 5,000 units was administered every three hours intravenously. During this time the temperature rose slightly and petechiae appeared on the finger tips. In spite of these signs, blood cultures were sterile and continued to remain so. The total amount of penicillin administered was 1,420,000 units.

Although the bacteremia appeared to have been satisfactorily controlled, the patient developed a number of serious complications during the ensuing weeks. On December 23 signs of an inflammatory pelvic mass appeared and she was placed on sulfadiazine. The response was apparently satisfactory and she was allowed to go home. On Feb. 5, 1943 she was readmitted because of recurrence of the inflammatory mass, and exploratory celiotomy was performed. At operation an infected ovarian cyst was found, and cultures revealed Str. viridans, group F, apparently the same organism which had been present in the blood stream. Since pelvic examination at the time of the first admission had revealed no abnormality, it was assumed that the infection resulted from a septic embolus. The patient's general condition did not permit extensive surgery, and hence the cyst was marsupialized. While convalescing from the operation, she developed an acute iridocyclitis and endophthalmitis which ultimately resulted in complete loss of vision in the left eye. Because of the development of draining sinuses and recurring abscesses of the abdominal wall, the subsequent course was protracted. Throughout this period, however, nineteen blood cultures were taken and all were sterile. Finally on April 6, 1944 she was readmitted for radical pelvic surgery. During this admission penicillin was administered prophylactically. Convalescence was uneventful and on April 30 she was discharged. Since then her course has been eminently satisfactory; she has gained 25 pounds (11.4 Kg.), is strong and healthy and leads a normal, active life. Blood cultures have consistently remained sterile.

CASE 2.—H. L., a woman aged 25, known to have had rheumatic fever in childhood, with subsequent rheumatic heart disease, was admitted Feb. 12, 1943 with a ten weeks history of fever and malaise. Examination revealed mitral stenosis, petechiae, clubbed fingers and a palpable spleen. Blood cultures were positive for Str. viridans, 68 colonies per cubic centimeter. The infecting strain belonged serologically to group H and was

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Owing to lack of space, this article has been abbreviated for publication in THE JOURNAL. The complete article appears in the authors' reprints.

From the Edward Daniels Faulkner Arthritis Clinic of the Presbyterian Hospital and the Department of Medicine, Columbia University College of Physicians and Surgeons.

The penicillin was provided by the Office of Scientific Research and Development from supplies assigned by the Committee on Medical Research for clinical investigations recommended by the Committee on Chemotherapeutics and Other Agents of the National Research Council.

1. Dawson, M. H., and Hobby, G. L.: The Clinical Use of Penicillin; Observations in 100 Cases, J. A. M. A. **124**: 611 (March 4) 1944.

2. Dawson, M. H.; Hobby, G. L., and Lipman, M. O.: Penicillin Sensitivity of Strains of Nonhemolytic Streptococci Isolated from Cases of Subacute Bacterial Endocarditis, Proc. Soc. Exper. Biol. & Med. **56**: 101 (June) 1944.

from one half to one fourth as sensitive to penicillin as the standard strain of hemolytic streptococcus.

On February 17 penicillin was started, 10,000 units every three hours intramuscularly for two days and then 5,000 units every three hours for four days. Although the temperature became normal within twenty-four hours and remained so on succeeding days, blood culture on February 23 showed 6 colonies per cubic centimeter. On February 26 penicillin was resumed, 5,000 units every three hours intramuscularly, and was continued for five days. The temperature again became normal, but blood culture on March 4 showed 24 colonies per cubic centimeter. On March 8 penicillin was started again, 10,000 units every three hours intramuscularly, and was continued for six days. Once more the clinical response was favorable, but blood cultures continued to be positive. After a total of 975,000 units had been given, penicillin therapy was discontinued because of our inability to obtain a further supply of the drug. She was then placed on sulfadiazine, which appeared to keep the infection in check, although blood cultures continued positive. She was discharged after six and one-half weeks' hospitalization and followed in the outpatient department for the next eleven months. The subsequent course of events is described in the second part of this communication.

Case 3.—F. R., a woman aged 40, first seen on April 1, 1943, gave a classic history of subacute bacterial endocarditis of three months' duration. Examination showed the presence of rheumatic heart disease. Numerous embolic phenomena had occurred, and blood cultures were repeatedly positive for Str. viridans, 60 colonies per cubic centimeter. The infecting organism belonged serologically to group F and was from one half to one fourth as sensitive to penicillin as the standard strain of hemolytic streptococcus. The patient had previously been treated with massive doses of sulfadiazine without appreciable effect.

After the administration of 10,000 units of penicillin every three hours intramuscularly for five days, the temperature returned to normal and blood culture was sterile. Forty-eight hours later, however, there was a recrudescence of fever, and blood culture was again positive. The same regimen was followed for a second five day period and a like result was obtained. Forty-eight hours after therapy was discontinued blood culture revealed 4 colonies per cubic centimeter. Treatment was therefore resumed for a third five day period, and, in an attempt to terminate the infection, the dosage was increased to 20,000 units every three hours intramuscularly for an additional three days. A sterile blood culture was again obtained, and the patient's condition showed a remarkable improvement. Within a few days, however, cultures again became positive, and it appeared probable that the infection could not be terminated with the amount of drug then available. Up to this time a total of 1,600,000 units had been administered. During the succeeding five months six further courses of penicillin were given, but, since there was no assurance at any time that further supplies would become available, treatment was not continued for longer than five days in any one course. On each occasion the temperature promptly returned to normal and continued so for periods varying from one to three weeks. The patient remained in excellent general health, but blood cultures taken during the febrile periods were uniformly positive. It was a matter of great interest that throughout the entire illness the organism remained fully as sensitive to penicillin in vitro as it had been originally. Although the infection persisted after a total of 6,700,000 units had been given intermittently over a period of six months, the response was sufficiently striking to warrant the hope that a favorable result might be obtained if a supply of penicillin was available for prolonged, intensive therapy.

Follow-up note: Three months later the patient received intensive penicillin and heparin therapy under the direction of Dr. Leo Loewe of the Jewish Hospital of Brooklyn. He reports that she is now living a normal, active life and is completely well nine months after discontinuance of all treatment.[3]

3. This follow-up report is included by permission of Dr. Loewe.

Case 4.—M. L., a woman aged 23 with a history of polyarthritis at the age of 8 followed by rheumatic mitral disease, was admitted on March 30, 1943 with fever, malaise and muscle aches of two weeks' duration. Four blood cultures were positive for Str. viridans. The organism could not be classified serologically and was fully as sensitive to penicillin as the standard strain of hemolytic streptococcus. On the eighth hospital day the patient developed a severe pain in the left upper quadrant which was interpreted as a splenic infarct. Penicillin therapy, 10,000 units every three hours intramuscularly, was instituted and continued for eight days. The temperature gradually returned to normal, and blood culture became sterile. On the eighth day she passed an embolus to the left leg in either the lower femoral or popliteal artery. Penicillin dosage was increased to 20,000 units every three hours intramuscularly for two days, and thereafter all therapy was discontinued. Total penicillin administered was 830,000 units. The subsequent course was uneventful. Blood cultures were uniformly sterile, and the erythrocyte sedimentation rate gradually fell from 121 to 35 mm. in one hour. On June 3 she was discharged to a convalescent home, the only complaints being occasional sticking sensations in the splenic region and some pain in the left foot after walking. Since June 1943 the patient has been seen on frequent occasions. Innumerable blood cultures have been sterile. She looks the picture of health and lives a normal, active life.

Case 5.—H. E., a woman aged 23, with aortic and mitral rheumatic heart disease, was first seen on April 14, 1943. Fever had been present for two months, several petechiae were noted, and the spleen was palpable. Numerous blood cultures were positive for Str. viridans, approximately 40 colonies per cubic centimeter. The infecting organism could not be classified serologically and was one fourth as sensitive to penicillin as the standard strain of hemolytic streptococcus. Penicillin was started, 10,000 units every three hours intramuscularly, and continued for eight days. The temperature gradually fell, and blood cultures became sterile. Immediately on discontinuance of therapy, however, there was a recrudescence of fever, and blood cultures again became positive. After an interval of three days, penicillin was resumed and continued for a second period of seven days. Blood culture again became sterile, and the temperature remained normal for the following three weeks. During this period, however, blood cultures again became positive and on May 9 penicillin was resumed. On this occasion she was given 20,000 units every three hours intramuscularly for five days. Although the patient continued in excellent clinical condition, a positive culture was again obtained at the end of this time. In the succeeding two months she was given six further short courses of penicillin, and on each occasion an essentially similar result was obtained. At no time, however, did the blood culture remain sterile for longer than a week. Throughout the entire period great difficulty was experienced in obtaining further supplies of penicillin, and it was never possible to arrange for a program of sustained therapy. On July 24 penicillin treatment was discontinued after a total of 7,960,000 units had been administered. On August 13 she was placed on sulfamerazine. The response was not favorable, and during the succeeding three weeks a low grade fever continued. Blood cultures remained positive. On September 4 a terminal episode occurred which was interpreted as a cerebral embolus.

The autopsy findings were of considerable interest, and the salient features of the pathologist's report are here presented:

"The lesions in the heart were much less extensive than is usually the case in subacute bacterial endocarditis. . . . In general, except for evidence of slight activity, the lesions were old and healed. . . . Careful microscopic examination of a large number of sections of tissue from the heart, all of them stained by the Gram-Weigert method, failed to disclose any detectible micro-organisms. . . . In view of the histologic findings in the heart I feel quite certain that the terminal bacteremia was not the result of the spread of micro-organisms from the heart itself, for the lesions were minimal and bacteria apparently absent. . . . In my opinion the probable source

of the terminal bacteremia was in the brain. . . . Unfortunately, however, the brain was not examined at autopsy and therefore one can only speculate about the cerebral lesions." [4]

SUMMARY OF RESULTS IN PRELIMINARY GROUP

The results obtained in the treatment of this preliminary series of 5 cases may be sumarized as follows: In 2 cases the outcome was apparently successful; after periods of twenty-two and eighteen months respectively the patients are in excellent health and leading normal, active lives. In the 3 remaining cases the response was satisfactory as long as penicillin was administered in the manner described, but the infection recurred when therapy was discontinued. Two of these patients were maintained in excellent general condition for many months and ultimately received intensive penicillin therapy combined with heparin, with completely satisfactory results. The third patient succumbed to a cerebral accident six weeks after cessation of penicillin. Postmortem examination of the heart in this case revealed substantial healing of the endocardium with only slight evidence of residual infection.

In view of the encouraging results in this preliminary series, it was hoped that the clinical trials might be continued in selected cases. In the meantime, much valuable experience has been obtained in the administration of penicillin in a variety of other infections,[1] and it was realized that the methods employed in the foregoing group of cases left much to be desired. However, further supplies of the drug could not be obtained for cases of this disease and the study was therefore temporarily abandoned. In January 1944 limited amounts of penicillin again became available for the treatment of cases of bacterial endocarditis and since then it has been possible to treat 23 additional patients. The second part of this report deals with the results obtained in the treatment of the first 15 of these.

PART II: CASES TREATED IN 1944

Just at the time when it became possible to resume the clinical trials, we learned of the work of Loewe and his associates [5] at the Jewish Hospital in Brooklyn. These workers reported the apparently successful treatment of 7 consecutive cases of subacute bacterial endocarditis by the combined use of penicillin and heparin. In their series penicillin was administered as a continuous intravenous drip and heparin was given subcutaneously in a special menstruum. Apart from any possible role which heparinization of the blood might play in controlling the infection, this type of anticoagulant therapy appeared to offer the following advantages: (*a*) The method of subcutaneous administration of heparin was apparently safe and practical, (*b*) the procedure might be of value in the therapy of cases in which major embolic complications developed, and (*c*) by preventing clotting of the blood in the veins used for continuous infusion the procedure would remove one of the major difficulties accompanying the technic of prolonged intravenous therapy. Accordingly, heparin was employed in all the cases treated between January and September 1944.[6] In several instances, however, the amount of heparin used is comparatively small. In some cases penicillin was administered by continuous intravenous drip and in other cases by intramuscular injection at frequent intervals. Recently a continuous intramuscular drip has been employed with apparently satisfactory results.[7]

Synopses of the 15 cases, together with a description of the additional treatment given in 1 of the cases already reported in the preliminary series, follow:

CASE 7.—R. J., a Negro girl aged 17 with a history of rheumatic fever at the age of 6 and known rheumatic heart disease, was admitted on Jan. 5, 1944 with symptoms of malaise, fever, night sweats and joint pains of one month's duration. Examination revealed conjunctival petechiae, an enlarged heart with mitral stenosis, a palpable spleen and temperature of 103 F. Four blood cultures were positive for Str. viridans with 78 to 137 colonies per cubic centimeter. The organism was one half as sensitive to penicillin as the standard strain of hemolytic streptococcus. On January 13 penicillin was started, 20,000 units every four hours intramuscularly. On the ninth day the dose was increased to 20,000 units every three hours and therapy was continued for five more days, making a total of 1,900,000 units. The temperature became normal within forty-eight hours after the institution of treatment but rose again to 101 F. shortly therafter. This rise was accompanied by joint pains, elevation of the erythrocyte sedimentation rate from 25 to 94 mm. in one hour, and electrocardiographic signs of rheumatic activity. On the administration of salicylates the temperature promptly returned to normal and the joint pains disappeared.

Heparin was administered subcutaneously as follows: January 13, 200 mg.; January 17, 300 mg.; January 22, 200 mg., and January 26, 200 mg. On January 18 the coagulation time rose to one hundred and fourteen minutes and remained between twenty and sixty minutes for several days but rose again to one hundred and fifteen minutes on January 27. On this day the patient complained of "mistiness of vision," and examination revealed bilateral preretinal hemorrhages in the macular region. She was given a blood transfusion of 300 cc., and the coagulation time promptly returned to ten minutes. The hemorrhages resolved rapidly, and after two weeks her vision again became normal.

The subsequent course was uneventful. On February 10 there were signs suggesting a splenic infarct but no rise in temperature or erythrocyte sedimentation rate occurred, and blood cultures in succeeding weeks were sterile. The patient remained in the hospital until March 27, progressively becoming more active. After two months in a convalescent home she returned to work. Since March, blood cultures have remained consistently sterile and the erythrocyte sedimentation rate has been normal. She has gained 30 pounds (13.6 Kg.), lives an active, normal life and enjoys excellent health.

CASE 2.—H. L. (additional report). Following discharge on March 28, 1943 the patient was maintained on sulfadiazine, 4 Gm. a day, and, although blood cultures continued to be positive, her general condition remained good until January 1944. Thereafter the situation deteriorated materially, with an increase in all symptoms as well as the development of a mycotic aneurysm of the right radial artery. On readmission, March 14, 1944, she was acutely ill and blood culture revealed Str. viridans, 102 colonies per cubic centimeter. Penicillin was started on March 18 by continuous intravenous drip. Because of technical difficulties with the infusion the patient received only about 100,000 units every day, but the clinical response was very satisfactory. After twelve days intramuscular injections were employed, and she was given 25,000 units every three hours for eleven days, the total amount administered being 3,542,000 units. Heparin was not given because the clotting time was found to be thirty minutes and the prothrombin time 27.7 seconds, possibly as the result of salicylate therapy. On April 6 a surgical consultant advised ligation of the aneurysm of the radial artery to prevent possible rupture. Following diodrast injection for arteriography, it was found that the

4. Dr. L. W. Gorham, physician-in-chief of the Albany Hospital, cooperated in the management of this case, and Dr. A. W. Wright, pathologist of the Albany Hospital, made the pathologic report available.

5. Loewe, L.; Rosenblatt, P.; Greene, H. J., and Russell, M.: Combined Penicillin and Heparin Therapy of Subacute Bacterial Endocarditis, J. A. M. A. **124**:144 (Jan. 15) 1944.

6. Dr. Loewe and his associates provided the heparin used in the present study and cooperated in the management of this type of anticoagulant therapy.

7. Harris, F. L.: Continuous Intramuscular Infusion of Penicillin, J. A. M. A. **126**: 232 (Sept. 23) 1944.

brachial artery had become thrombosed proximal to its bifurcation, and the aneurysm ceased to pulsate. She was given 100 mg. of heparin subcutaneously to prevent further thrombosis in the collaterals. Circulation was gradually reestablished in the brachial artery, and all trace of the aneurysm ultimately disappeared. Following cessation of penicillin on April 10 her course continued to be afebrile; blood cultures remained sterile, and she was discharged on May 2. Since then she has been seen on frequent occasions. She has regained her original weight, is doing her own housework and states that she feels as though she never had been ill. Frequent blood cultures have been sterile.

Case 12.—N. W., a boy aged 13 years with a history of rheumatic fever at the age of 4 and known rheumatic heart disease since 1935, developed fever and malaise in December 1943. Blood culture in January 1944 at another hospital yielded Str. viridans, and on February 2 sulfadiazine was started, 1 Gm. every three hours.. On the following day there was a complete hemiplegia. On February 15 he had severe pain in the right flank, which was interpreted as a renal embolus. On March 6 he was admitted to the Babies Hospital. The boy was pale, feverish and wasted, chronically and severely ill, with weakness of the right facial muscles and spastic paralysis of the right side of the body. The skin over the coccyx was red and atrophic. The heart showed aortic and mitral disease. Five blood cultures were positive for Str. viridans, which was as sensitive to penicillin as the standard strain. Sulfadiazine, 4 Gm. a day, was given from March 9 to April 10 without significant effect. Although the prognosis was considered hopeless, penicillin was started on April 13, 120,000 units every day by intravenous drip. A single injection of 100 mg. of heparin was given subcutaneously on April 13 and the clotting time remained above thirty-five minutes for eight days. During the first five days of penicillin therapy the response appeared to be favorable. His temperature fell to levels around 100 F. but rose to 104 F. on April 18 and remained between 103 and 105 F. for the next week. On April 20 he vomited some clotted blood, and thereafter heparin was discontinued. On three occasions severe thrombophlebitis developed at the sites of the intravenous needle, but the muscles were so wasted and atrophic that intramuscular injections seemed impossible. Because of failure to improve and the generally hopeless outlook (hemiplegia and extensive decubitus), therapy was stopped on the twelfth day after a total of 1,410,000 units had been administered. Six days after cessation of therapy the temperature became normal and remained so. Blood cultures were sterile, the decubitus gradually healed and there was some improvement in the hemiplegia. He remained in the hospital until September 16, gradually gaining weight and strength. From July 25 to August 2 he was treated with sulfadiazine for acute tonsillitis and made an uneventful recovery. One blood culture on August 21 showed a few colonies of streptococci in one flask, but five subsequent cultures were negative. When last seen in October he had gained 22 pounds (10 Kg.) and there was no clinical evidence of infection. The function of the right arm and leg showed continued improvement, and blood cultures were sterile.

Case 14.—C. A., a man aged 31, was admitted on April 19, 1944 with a three months history of fever, malaise, weight loss, generalized aches and pains and tender finger tips. The past history was exceedingly complicated and included chorea at the age of 8 and the development of a parkinsonian syndrome following encephalitis at the age of 13. Three and a half years previously he had been admitted to the Presbyterian Hospital and at that time was found to have classic subacute bacterial endocarditis. Str. viridans was obtained in seven blood cultures. From Oct. 22, 1940 to Dec. 20, 1940 he was given 6 Gm. of sulfapyridine daily. The clinical response was very satisfactory; the temperature gradually returned to normal, and blood cultures became sterile. Following discharge on December 20 he was maintained on sulfapyridine, 6 Gm. a day, until March 4, 1941. Chemotherapy was then discontinued, and in the succeeding three years there was no evidence of a return of the infection.

As a matter of historical interest it may be noted that on Oct. 16 and 17, 1940, preceding sulfonamide therapy, this patient was given injections of a penicillin solution prepared in our own laboratories by Dr. Karl Meyer. Although proved to be highly effective in the treatment of experimental infections in animals, the potency of this preparation was not titered in Oxford units. Further penicillin therapy was not possible at that time because of the limited amount of material available. Although the quantity was too small to achieve a significant result, it is believed that this is the first occasion on which penicillin was employed clinically in this country.

On readmission, April 19, 1944, the patient was found to have a temperature of 103 F., an enlarged heart, aortic diastolic murmur, palpable spleen and clubbed fingers. Four blood cultures were positive for Str. viridans, 23 colonies per cubic centimeter, and the organism was one half as sensitive to penicillin as the standard strain. On April 25 penicillin was started, 200,000 units every day by intravenous drip. The clotting time was maintained between twenty-four and ninety minutes by subcutaneous injections of 200 mg. of heparin on April 20 and May 4. The temperature promptly returned to normal. On the fifth day penicillin dosage was changed to 25,000 units every three hours intramuscularly because of difficulty with veins. On the eighth day he developed a left hemiplegia and aphasia, apparently as the result of an embolus in the right internal capsule. The temperature rose to 104 F., gradually returning to levels of 99 and 100 F. at the end of the second week. After 3,090,000 units of penicillin had been given over a sixteen day period, therapy was stopped to permit evaluation of the situation. Blood cultures remained sterile and the clinical course was afebrile. The patient was observed in the hospital for three months, during which time there was some improvement in the hemiplegia and aphasia. On August 15 he was transferred to another institution for chronic care. Since then there has been no evidence of a recurrence of the infection and the general health of the patient has continued to improve.

In this unusual case it seems reasonable to suppose that the second illness, which occurred three and a half years after the first, represented a new infection rather than a recurrence of the original one.

Case 15.—A. V., a man aged 37, without recognized history of rheumatic fever, was admitted on April 17, 1944 with a three months history of fever and weight loss. Physical examination revealed mitral and aortic murmurs and a palpable spleen. Four blood cultures were positive for Str. viridans, approximately 12 colonies per cubic centimeter. The infecting strain was one half as sensitive to penicillin as the standard strain of hemolytic streptococcus. Penicillin was started on April 26, 200,000 units daily by intravenous drip. The coagulation time was maintained between twenty and sixty minutes by the administration of 200 mg. of heparin subcutaneously on four occasions. The clinical course was uneventful. The temperature showed some elevation in the latter part of therapy, apparently as a result of reaction to heparin. Penicillin was discontinued on the twenty-first day, after a total of 4,150,000 units had been administered. After cessation of therapy the patient continued to have a low grade fever for twelve days. Blood cultures, however, remained sterile and he was discharged June 8, afebrile and in good clinical condition. Since then he has been seen on frequent occasions and has remained asymptomatic. The erythrocyte sedimentation rate remained elevated for several months but gradually returned to normal. He has gained 30 pounds (13.6 Kg.) in weight, looks the picture of health and has resumed his former occupation.

Case 16.—O. M., a man aged 30 with a history of rheumatic fever at the age of 8, developed malaise, fever, cough and painful finger tips in February 1944. On admission, April 26, there were petechiae on the soft palate, aortic and mitral disease, palpable spleen and clubbing of the fingers. Three blood cultures

were positive for Str. viridans, approximately 20 colonies per cubic centimeter. The organism was one eighth as sensitive to penicillin as the standard strain. Penicillin, 200,000 units every day by intravenous drip, was started on May 4, and clotting times were maintained between twenty and seventy minutes by subcutaneous heparin, 200 mg. every four or five days. The patient continued to have a low grade fever for two weeks, and then his temperature rose to 103 F., presumably as the result of thrombophlebitis at the site of the intravenous drip. At the end of the third week of therapy the temperature became normal and penicillin was stopped, after a total of 4,150,000 units had been given. Twenty-four hours later his temperature rose again, and blood culture two days later was positive. On May 29 therapy was resumed. Because of difficulty with veins he was given 25,000 units every three hours intramuscularly, and treatment was continued for two weeks. Fever persisted, and blood cultures remained positive. Accordingly, the dosage was increased to 300,000 units every day by intravenous drip, and therapy was continued for two more weeks. On this regimen the blood culture again became negative, although low grade fever continued. Therapy was discontinued on June 26, after a total of 7,100,000 units had been given. Four days later, however, blood culture was again positive. On July 5 penicillin was resumed, and on this occasion the patient was given 300,000 units daily by intravenous drip and 6 Gm. of sulfadiazine orally. Because of several episodes of phlebitis, it became necessary to resort to intramuscular injections after five days, and sulfadiazine was increased to 9 Gm. daily. This regimen was continued until July 17. In the succeeding two weeks his clinical condition improved, the spleen no longer was palpable and blood cultures were sterile. Although there was much doubt that the infection had been terminated, the patient was discharged on August 4 on a maintenance dose of 6 Gm. of sulfadiazine daily. One week later blood culture was again positive and he was readmitted on August 21.

Up to this time he had received a total of 15,700,000 units of penicillin in three courses over three months. Since his general condition remained excellent, and since the infecting strain was just as sensitive to penicillin as it had been originally, arrangements were made for resumption of intensive therapy. Starting on August 22 he was given 50,000 units approximately every two and a half hours by intramuscular injection for eighteen days, followed by 500,000 units daily by intravenous drip for a further period of twenty-three days. While on intravenous therapy the clotting time was maintained between thirty-six and seventy-four minutes by the administration of 200 mg. of heparin subcutaneously on three occasions. In spite of this intensive therapy he continued to have an irregular fever, and blood cultures were intermittently positive. Penicillin treatment was discontinued on October 3, and maintenance doses of sulfadiazine were instituted. Thereafter blood cultures continued to be positive. Although the patient's general condition had deteriorated very little since his first admission five months previously, the administration of 36,700,000 units of penicillin failed to terminate the infection. At present he is being maintained on sulfonamides pending a decision regarding further penicillin therapy.

CASE 19.—G. L., a woman aged 21 with a history of rheumatic fever at the ages of 13 and 16 and known to have mitral and aortic disease, was delivered of a normal child on March 5, 1944. The postpartum course was uneventful. On July 7 she complained of fever, chills and general malaise and was admitted five days later. On admission the temperature was 103 F. and the spleen was palpable. Five blood cultures were positive for Str. viridans, and the strain was one eighth as sensitive to penicillin as the standard strain. Penicillin was started on July 22, 40,000 units every three hours intramuscularly. The intramuscular route was chosen because of poor veins, and larger doses than usual were given because the infecting strain was relatively resistant. The clotting time was maintained between twenty-five and sixty minutes by subcutaneous heparin, 200 mg. on two occasions and 100 mg. on one occasion. The course was uneventful and essentially afebrile. Blood culture was sterile three days after the institution of therapy and remained so thereafter. Penicillin was stopped after 3,880,000 units had been given over a twelve day period. She was allowed home sixteen days later in order that she might be with her husband during his leave from the Army. During the next three months she gained weight and strength and now feels and looks the picture of health. Blood cultures have remained sterile.

CASE 20.—E. C., a woman aged 40 with known rheumatic fever in childhood, was admitted on June 27, 1944 with a history of fever and malaise of two months' duration following dental extractions. Examination showed the presence of a mitral lesion, and five blood cultures were positive for Str. viridans. The infecting strain was one half as sensitive to penicillin as the standard strain. On August 8 penicillin was started, 25,000 units every three hours intramuscularly. The intramuscular route was used because of lack of suitable veins. Clotting time was maintained between twenty-six and seventy-seven minutes by the administration of 200 mg. of heparin every four or five days. On August 26 the clotting time rose to one hundred and ten minutes and the patient developed epistaxis. A transfusion was given with immediate satisfactory response. She continued to have a low grade fever, but the course otherwise was uneventful. Therapy was continued for three weeks, at which time a total of 4,200,000 units of penicillin and 1,000 mg. of heparin had been administered. Although her clinical condition was highly satisfactory, blood culture taken ten days after cessation of penicillin was positive. On succeeding days the temperature rose slightly, and penicillin therapy was reinstituted on September 17. On this occasion the dose was increased to 40,000 units every three hours intramuscularly, and treatment was continued for twenty-one days. Heparin, 200 mg., was administered subcutaneously on three occasions. The temperature remained below 100 F. and the patient was essentially asymptomatic. During the second course 6,360,000 units of penicillin was administered. Since discontinuance of therapy on October 7, blood cultures have remained sterile, the erythrocyte sedimentation rate has continued to fall and the patient states that she feels perfectly well.

The results of treatment in these 16 cases may be summarized as follows: In 11 patients the infection has apparently been terminated. All 11 have remained bacteria free and in excellent general health for periods of three months or longer since therapy was discontinued. One additional case has apparently responded satisfactorily but sufficient time has not yet elapsed to permit proper evaluation of the situation. In 2 patients the infection was temporarily controlled but recurred when treatment was stopped. Two patients succumbed; in each instance the terminal episode was apparently a cerebral embolus.

ANALYSIS OF CASES

In order that the experience gained in the treatment of the 20 cases described in this report may be helpful as a guide in the future therapy of this disease, the material is analyzed from several points of view.

Selection of Cases.—As stated in the introduction, the 5 cases described in the first part of this report were selected on a basis of the good clinical condition of the patient and a well defined sensitivity to penicillin on the part of the infecting strain. With the exception of 3 patients who were not accepted for treatment because the infecting organism was found to be almost totally resistant to penicillin, the 15 cases described in the second part of the report were unselected and represented consecutive hospital admissions from January to August 1944. Some of the patients were desperately ill when therapy was started, while others were in good general condition. It is worth commenting that the

patient in the poorest condition clinically (patient 12) made an apparently uneventful recovery, while 1 of the patients in excellent general condition (patient 16) failed to respond.

Primary Cardiac Disease.—In 18 of the cases the underlying cardiac disease was rheumatic in nature and in the remaining 2 congenital. Of the cases of congenital heart disease, 1 responded in a most satisfactory manner and the other was resistant, although the infecting strain was highly sensitive to penicillin. In the group with rheumatic heart involvement there were 10 cases of mitral disease and 8 cases of combined mitral and aortic disease. No correlation was observed between the valvular distribution of the rheumatic lesion and the outcome of therapy.

Probable Duration of Infection.—It was obviously impossible in many instances to determine even approximately the time of onset of the infection; in other cases the date could be fixed with a reasonable degree of certainty. As shown in the table, the probable duration of the infection at the time therapy was started varied from two weeks to fifteen months. In the majority of the cases symptoms had been present from two to three months. No direct relationship appeared to exist between the duration of the disease and the outcome of therapy. Two of the cases of shortest duration, two weeks and one month respectively, showed a very prompt response, but another case known to have been infected for fifteen months also responded favorably. On the other hand, 2 cases of two and two and a half months' duration respectively proved to be exceedingly refractory.

Penicillin Sensitivity of the Infecting Strain.—The method used in the determination of penicillin sensitivity is described elsewhere.[2] For convenience, the sensitivity of each strain was compared with that of a standard strain of group A hemolytic streptococcus (strain C203Mv). One strain was found to be twice as sensitive as the standard strain, five strains were equally sensitive, seven strains were one half as sensitive, three strains were one fourth as sensitive and four strains were one eighth as sensitive. In terms of the amount of penicillin, the sensitivity of the standard strain is such that the growth of a 10^{-2} dilution, containing approximately 3 million organisms, is inhibited by 0.017 unit. The approximate amount of penicillin necessary to inhibit growth of the arbitrary standard seeding of one strain was 0.008 unit, of five strains 0.017 unit, of seven strains 0.035 unit, of three strains 0.07 unit and of four strains 0.14 unit.

Analysis of the results of treatment according to the nature of the infecting strain offers little information of value at the present time. One case in which the organism was only one eighth as sensitive as the standard strain proved refractory (case 16), but in 3 other cases in which the organism was equally resistant the response was satisfactory (cases 9, 13 and 19). Two cases in which the organism was very sensitive (cases 6 and 17) failed to respond, while 3 other cases in which the strain showed the same degree of sensitivity responded promptly (cases 4, 10 and 12). It should be noted, however, that the results in those cases in which the strains belonged serologically to groups F and H were uniformly good. Mention has been made elsewhere of the fact that 3 other cases were not accepted for treatment because the infecting strains were highly resistant as judged by in vitro tests. The organisms from these cases were from one hundred and sixty to eight hundred times as resistant as the standard strain. At the present time data are being accumulated on the relationship between the in vitro sensitivity of strains and the penicillin blood levels necessary to effect sterilization of the blood stream. It is believed that these studies will provide information of value in the future therapy of cases of this disease.

ANALYSIS OF THERAPY

In the present series of cases the method of penicillin administration, dosage and length of treatment varied greatly. As previously mentioned, the amount of drug available while the preliminary group of 5 cases was being treated was very limited, and it was not possible to plan for a sustained therapeutic regimen. As the supply increased, the methods of administration and dosage became more uniform, but it is felt that much further experience will be necessary before a standardized procedure is established.

Methods of Penicillin Administration.—In 7 cases the drug was administered by intramuscular injection at frequent intervals, usually every three hours. In 5 cases an intravenous drip was employed, and in 8 cases both methods were used at different times, as circumstances dictated. The results were apparently completely satisfactory in 5 of the 7 cases treated by the intramuscular route and in 4 of the 5 cases treated by intravenous drip. The two groups are so small, however, and other factors so variable that no conclusions can be drawn from these results. Each method possesses distinct advantages as well as disadvantages. The method of frequent intramuscular injections is simple and less trying on the patient but suffers from the disadvantage of failing to produce uniformly effective blood levels of penicillin. The technic of the continuous intravenous drip is more difficult and thrombophlebitis frequently develops at the site of injection, but uniformly effective blood levels are maintained throughout. More recently a continuous intramuscular drip, as suggested by the English workers and described in this country by Harris,[7] has been used with apparently satisfactory results. It seems possible that this will represent the method of choice in the future.

Dosage of Penicillin.—The daily dosage varied from as little as 80,000 units in 1 of the early cases to as much as 500,000 units in 1 of the more resistant cases. The total amount given to each patient ranged from 830,000 to 36,700,000 units. It became apparent very early in the clinical trials that the requirements of each case varied greatly, and therapy was largely determined empirically. As experience accumulated a regimen of 200,000 units daily for three weeks was established as a standard. This appeared to be adequate for the majority of cases, but in 3 instances signs of infection recurred when treatment was discontinued and additional therapy was given. In succeeding courses the daily dose was increased to 300,000 or 320,000 units and in 1 case to 500,000 units, and treatment was continued for a longer period of time. Two of the cases failed to respond to this increased dosage, but in 1 case the result was apparently satisfactory.

Duration of Therapy.—In the present series, therapy was continued for periods varying from ten to sixty-two days. Cases 4, 7, 8, 12 and 19 were treated for ten, fourteen, fourteen, twelve and twelve days respectively, and the results were uniformly satisfactory. On the

Results in Twenty Cases of Subacute Bacterial Endocarditis Treated with Penicillin

Case No.	Patient	Age, Sex	Primary Cardiac Disease	Probable Duration of Infection	Infecting Organism: Type	Infecting Organism: Sensitivity to Penicillin, Units per Cc.	Penicillin: Dates of Therapy	Penicillin: Dose in Units and Route	Penicillin: No. Days	Penicillin: Total per Course and per Patient	Total Heparin, Mg.	Result	Follow-Up 11/1/44
1	H. H.	27, ♀	Rheumatic	3 mos.	Streptococcus viridans	0.035	10/23/42-12/12/42 (intermittent)	5-10,000 q3h IM	23	1,420,000	0	Recovered	22 mos.
2	H. L.	28, ♀	Rheumatic	(a) 2½ mos. (b) 15 mos.	Streptococcus viridans	0.07	2/17/43-3/13/43 (intermittent) 3/18/44-4/10/44	5-10,000 q3h IM 100-200,000 IV drip qd or 25,000 q3h IM	17 24	975,000 3,542,000	0 100		
									41	4,517,000	100	Recovered	7 mos.
3	F. B.	40, ♀	Rheumatic	(a) 3 mos. (b) 11 mos.*	Indifferent streptococcus	0.07	4/1/43-9/18/43 (intermittent)	10-20,000 q3h IM	38	6,070,000	0	Recovered*	10 mos.*
4	M. L.	23, ♀	Rheumatic	2 wks.	Indifferent streptococcus	0.017	4/8/43-4/17/43	10-20,000 q3h IM	10	830,000	0	Recovered	18 mos.
5	H. E.	23, ♀	Rheumatic	2-3 mos.	Streptococcus viridans	0.07	4/14/43-7/24/43 (intermittent)	10-20,000 q3h IM	33+	7,900,000	0	Died	
6	O. M.	17, ♂	Congenital	5½ mos.	Indifferent streptococcus	0.017	1/6/44-1/27/44	200,000 qd IV drip	21	3,960,000	2,000	Died	
7	R. J.	17, ♀	Rheumatic	1 mo.	Streptococcus viridans	0.035	1/13/44-1/27/44	20,000 q3-4h IM	14	1,900,000	900	Recovered	9 mos.
8	P. M.	11, ♀	Congenital	3 mos.	Streptococcus viridans	0.008	1/28/44-2/11/44	100,000 qd IV drip	14	1,296,000	600	Recovered	8 mos.
9	R. G.	50, ♂	Rheumatic	4½ mos.	Indifferent streptococcus	0.14	(a) 1/15/44-1/21/44 (operation)	20,000 q4h IM	7	790,000	600		
							(b) 2/24/44-3/20/44	200,000 qd IV drip or 25,000 q3h IM	25	5,525,000	1,400		
									32	6,315,000	2,000	Recovered	7 mos.
10	W. A.	49, ♂	Rheumatic	3 mos.	Streptococcus viridans	0.017	3/13/44-4/3/44	200,000 qd IV drip	21	4,200,000	1,000	Recovered	7 mos.
11	J. M.	39, ♀	Rheumatic	4½ mos.	Streptococcus viridans	0.035	3/24/44-4/14/44	100-200,000 qd IV drip or 25,000 q3h IM	21	4,015,000	400	Died	
12	N. W.	13, ♂	Rheumatic	3 mos.	Streptococcus viridans	0.017	4/13/44-4/25/44	120,000 qd IV drip	12	1,410,000	100	Recovered	6 mos.
13	E. M.	10, ♀	Rheumatic	3½ mos.	Streptococcus viridans	0.14	(a) 4/20/44-5/12/44	200,000 qd IV drip or 25,000 q3h IM	22	4,210,000	200		
							(b) 5/15/44-5/29/44	25,000 q3h IM	14	2,750,000	100		
									36	6,960,000	300	Recovered	5 mos.
14	C. A.	31, ♂	Rheumatic	3 mos.	Streptococcus viridans	0.035	4/25/44-5/11/44	200,000 qd IV drip or 25,000 q3h IM	16	3,090,000	400	Recovered	6 mos.
15	A. V.	37, ♂	Rheumatic	3 mos.	Streptococcus viridans	0.035	4/26/44-5/16/44	200,000 qd IV drip	20	4,150,000	800	Recovered	5 mos.
16	O. M.	30, ♂	Rheumatic	2½ mos.	Streptococcus viridans	0.14	(a) 5/4/44-5/25/44	200,000 qd IV drip or 25,000 q3h IM	21	4,150,000	800		
							(b) 5/29/44-6/26/44	300,000 qd IV drip or 25,000 q3h IM	28	7,100,000	1,200		
							(c) 7/5/44-7/17/44	300-400,000 qd IV drip or 50,000 q3h IM	12	4,450,000	800		
							(d) 8/22/44-10/2/44	500,000 qd IV drip or 50,000 q2½h IM	42	21,000,000	600		
									103	36,700,000	3,400	Relapsed	
17	M. K.	21, ♀	Rheumatic	2 mos.	Streptococcus viridans	0.017	(a) 6/23/44-7/13/44	200,000 qd IV drip	21	4,000,000	200		
							(b) 7/29/44-8/10/44	40,000 q3h IM	12	3,840,000	0		
							(c) 8/19/44-9/16/44	25,000 q3h IM	27	5,650,000	200		
							(d) 9/25/44-10/20/44	200,000 qd IM drip	25	4,900,000	600		
									85	18,390,000	1,000	Relapsed	
18	I. W.	60, ♀	Rheumatic	3 mos.	Streptococcus viridans	0.035	7/12/44-8/1/44	25,000 q3h IM	20	4,075,000	900	Recovered	3 mos.
19	G. L.	21, ♀	Rheumatic	3 wks.	Streptococcus viridans	0.14	7/22/44-8/3/44	40,000 q3h IM	12	3,880,000	500	Recovered	3 mos.
20	E. C.	40, ♀	Rheumatic	2 mos.	Streptococcus viridans	0.035	(a) 8/8/44-8/29/44	25,000 q3h IM	21	4,200,000	1,000		
							(b) 9/17/44-10/7/44	40,000 q3h IM	20	6,360,000	600		
									41	10,560,000	1,600	Recovered	1 mo.

* Treated by Dr. Leo Loewe, Jewish Hospital of Brooklyn, to whom the patient was referred for combined penicillin and heparin therapy.

other hand, in cases 16 and 17 the infection persisted after one hundred and three and eighty-five days of treatment respectively. It is apparent, therefore, that the time for which treatment should be continued varies greatly from case to case. As the study proceeded, and as a more uniform supply of drug became available, the majority of cases were treated for an initial period of twenty-one days. If the infection persisted at the end of this time, further courses of variable length were given as circumstances indicated. The effect of larger daily doses of penicillin administered for shorter periods of time will be the subject of further investigation.

Heparin.—In the preliminary group of 5 cases treated in 1942 and 1943, heparin was not employed. At the time when arrangements were made to resume the study, Loewe and his associates [8] reported their results with combined penicillin and heparin therapy. Since major embolic phenomena proved to be a serious complication in the preliminary group and since the method of administering heparin subcutaneously, as described by Loewe, appeared to be a safe procedure, this type of anticoagulant therapy was employed in the cases subsequently treated. In 1 patient the anticoagulant was used only to prevent thrombosis in collateral vessels following ligation of a mycotic aneurysm of the ulnar artery. In the majority of patients the coagulation time was maintained between thirty and sixty minutes; in other cases less intensive therapy was employed. The amount of heparin necessary to induce this change in clotting time varied greatly from patient to patient. Some patients received 200 mg. every four or five days and others lesser amounts. The majority of the patients tolerated the treatment reasonably well, but others complained of pain at the site of the injections. Not infrequently the administration of heparin led to systemic reactions with sharp febrile responses, which confused the clinical picture considerably.

Hemorrhagic complications resulting from heparinization were definitely observed in only 1 instance. In case 7 preretinal hemorrhages occurred in both macular regions when the clotting time was observed to be in the neighborhood of one hundred and fifteen minutes, which is much above the recommended safe clotting time of thirty to sixty minutes.[8] A transfusion was given as soon as the complication was recognized, and the hemorrhages resolved without residual impairment of vision. In 2 other cases bleeding episodes occurred but heparin could not be incriminated with certainty. Major embolic episodes were observed in 4 patients who received adequate heparinization, but in 2 of these the event occurred several days after treatment had been discontinued. One patient developed a cerebral embolus at a time when his blood was adequately heparinized.

Present experience is inadequate to form an opinion as to the value of heparin therapy as an adjuvant to penicillin in the treatment of this disease. It will be noted, however, that the response in 2 cases in the preliminary series was satisfactory without heparin, and more recently several additional cases have responded satisfactorily without anticoagulant therapy. Much further experience in a considerable series of cases treated with and without heparin will therefore be necessary before an opinion can be expressed as to its value.

8. Loewe, Leo, and Rosenblatt, Philip: A New Practical Method for Subcutaneous Administration of Heparin, Am. J. M. Sc. **208**: 54 (July) 1944.

RESULTS

It is recognized that a long follow-up period will be necessary before the ultimate outcome can be determined in a chronic disease such as subacute bacterial endocarditis, in which the infection may remain latent for considerable periods of time. Present experience with penicillin therapy, however, suggests that the prognosis is excellent in cases which remain clinically and bacteriologically free from infection for a period of four weeks after treatment has been discontinued. At the present time 14 of the 20 patients are in excellent general health and have been free from all evidence of infection for at least three months since treatment was stopped. One additional patient is in excellent health and has been free from all evidence of infection for four weeks. It is believed that the prognosis in this case is good. In 12 of the 14 patients the follow-up period has been five months or longer, and 2 patients have been followed for periods of eighteen and twenty-two months respectively. Two patients responded temporarily to the administration of penicillin, but in spite of protracted treatment with large doses a relapse occurred when therapy was discontinued. These 2 patients are still in excellent general condition, and it is hoped that it will yet be possible to arrange for a therapeutic regimen which will finally terminate the infection. The remaining 3 patients have succumbed. In each instance death was apparently due to a cerebral embolus. In 2 of the fatal cases the infection was still present at the time of death, and in the third the situation was in doubt.

The change which has taken place in the 15 patients who have apparently recovered has been truly remarkable. With the exception of 3 patients, 2 of whom suffer from hemiplegia and 1 who subsequently developed a coronary occlusion, all the "recovered" patients have returned to work or resumed their former occupations.

SUMMARY

Twenty patients with subacute bacterial endocarditis were treated with penicillin. A preliminary group of 5 were treated in 1942 and 1943, and 15 were treated in 1944. The infecting organism was a streptococcus in all instances. Heparin was employed as an adjuvant to penicillin in the treatment of the majority. While it is recognized that a long follow-up will be necessary before the ultimate outcome is established, therapy was apparently successful in 15 of the 20. All 15 patients are now clinically and bacteriologically free from infection. In 2 of the remaining 5 patients the infection was controlled as long as penicillin was administered, but a relapse occurred when therapy was discontinued. These 2 patients are still in excellent general health, and it is hoped that it will yet be possible to arrange for a therapeutic regimen which will produce a satisfactory outcome. The remaining 3 patients succumbed. In each instance death was apparently due to a cerebral embolus. In 2 of the fatal cases the infection was still present at the time of death, and in the third the situation was in doubt. Further experience is necessary before an opinion can be expressed regarding the value of heparin as an adjuvant to penicillin in the treatment of this disease.

CONCLUSION

Patients with subacute bacterial endocarditis should be treated with penicillin if the infecting organism is a streptococcus sensitive to the action of the drug.

ADDENDUM

Since the preparation of this report, 7 additional patients with subacute bacterial endocarditis have been treated with penicillin. In the last 5 of these penicillin was administered by continuous intramuscular drip and heparin was not employed. The results indicate that the response was as favorable in this group as in those patients in whom heparin was used. In 6 patients the infection has apparently been terminated. The seventh patient relapsed after one course and is now receiving additional therapy.

Comparative studies, which will be reported in detail elsewhere, show that as a rule higher blood levels are obtained in patients receiving penicillin by continuous intramuscular drip than in those receiving continuous intravenous drip. Since the intramuscular drip is also better tolerated by the patient and the technic is simpler, this method of administration appears to be the one of choice for patients receiving penicillin for prolonged periods.

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THE TREATMENT OF SPONDYLOLISTHESIS

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This study was begun with the thought that fixation of opposing vertebrae resulting from complete removal of an affected disk at the site of the spondylolisthesis would produce a much simpler and more effective fusion of the spine than the customary fusion with bone grafts. The observations from the series of patients operated on has led to unexpected conclusions; i. e. (1) that the spondylolisthesis is usually responsible for only part and at times none of the symptoms, (2) that in most (not all) instances it is not the spondylolisthesis or even the disk at its site that causes the symptoms but rather another disk or disks and (3) that therefore cure usually depends more on removal of the other disk or disks than on the one at the site of the spondylolisthesis, though this too must be extirpated.

The principal reasons for these seemingly paradoxical conclusions are that: 1. In only 3 of the 20 cases was there a protruding disk at the site of the dislocated vertebra. 2. In each of 3 cases there was a single and in 2 other cases two large protruding disks at other interspaces, whereas there was no protrusion at the site of the dislocation. 3. In only 2 of the 20 patients was no defective disk found in addition to the one at the spondylolisthesis (and as these 2 patients are not cured it is probable that they too have another disk). 4. Moreover, these statistical studies are strikingly similar to those for defective disks without spondylolisthesis. In a recent publication it was stated that about 80 per cent of defective disks were multiple; in this series of cases 90 per cent were multiple and it is quite probable that all are multiple, as the remaining 2 cases are not cured. It is difficult to believe that other disks are not always affected when the spinal column is thrown out of line by the spondylolisthesis. 5. It was also stated that only about 25 per cent of all disks were protruding, the remainder being of the small or so-called concealed type. From this group of cases 44 disks were removed and of these 11, or 25 per cent, were protruding. From these figures therefore there is no difference between the findings with and without spondylolisthesis.

It is my impression from this analysis that the spondylolisthesis is but an incident in the field of ruptured disks and that, on the whole, while it causes its share of symptoms it causes less than the contiguous disk or disks. Certainly any treatment that neglected the other disks would accomplish little if any result. Moreover, the reason for the development of spondylolisthesis is precisely the same as for defective disks; i. e., the outward shift in the lateral articulations in the lower three lumbar vertebrae and nearly always most pronounced at the fifth lumbar. Here the joint is frequently turned outward 90 degrees from the direction of those at the first and second lumbar vertebrae and in addition the joint is at times flat and vertical and with little or no flanges to keep the joint surfaces from slipping. At the third and fourth lumbar vertebrae these changes are less severe but are still great enough to induce defective disks; occasionally spondylolisthesis can occur at these disks (one in this series). And finally the signs and symptoms of spondylolisthesis are precisely the same as those of defective disks without spondylolisthesis. Only the x-ray appearance makes the differential diagnosis.

FUSION OPERATIONS BY AUTOGENOUS GRAFTS

Heretofore the standard treatment for spondylolisthesis has been spinal fusions with autogenous grafts. This might appear to be at least a rational procedure if the foregoing conclusion that other disks are equally concerned in symptoms was not known. But with this knowledge, fusion without removing the disks accomplishes nothing—it merely covers up the defective disks, both concealed and protruding—and the symptoms continue practically unchanged. From experience with probably 25 cases in which fusion has been done elsewhere I know this to be a fact—the backache and sciatica have continued. From this series 3, or 15 per cent, had had a total of seven fusion operations (done elsewhere) without benefit.

The avoidance of a fusion operation means a great saving to the patient. In the first place it is a prolonged major operative procedure. It is necessary to be hospitalized in a cast for two or three months. Moreover, many grafts are unsuccessful, many absorb; and, if infection should develop, which is a not uncommon experience, much or all of the graft is lost. And when a subsequent operation for removal of the disks is necessary, it makes the procedure exceedingly difficult and at times unsatisfactory. Finally, the graft is contraindicated and useless because it merely covers up the offending disks and adds nothing to the fusion that follows complete removal of the disks.

Following a disk operation there is no need for a cast. The patient can leave the hospital in a week to ten days. A light corset is advised for two or three months.

THE TREATMENT BY REMOVING THE DISKS

The three most important items in treatment are:

1. The complete removal of the affected disks.
2. The recognition of multiple disks.
3. The recognition of small (concealed) disks.

If a disk is thoroughly and painstakingly removed with a curet, it cannot recur. This does not mean that every particle of cartilage must be extirpated, but it does mean that no large amount can remain. The most difficult area of the disk to remove is dorsally on the contralateral side, and a recurrence with sciatica on the opposite side will occasionally occur. The incidence

of this, however, should be low—five times in the last 800 disks. If curets are not very sharp, cartilage may remain in any part of the disk and a recurrence follow. Up to the present writing this has occurred only once. These are only the exceptions that prove the rule and are due to the personal equation, not to the method. When disks recur the cavity in the disk remains open and does not fill with granulations. Under these circumstances the vertebra remains very loose (mobility test of pressure on the spinous processes). When a disk has been completely removed, the vertebra becomes absolutely tight and in three months no movement is possible with the maximum pressure on the spinous process, and it remains so. This means that fusion of the vertebrae has been attained. Stabilization of the spine is absolutely necessary for a cure. When the broad surfaces of the vertebrae unite, the fusion is just as perfect as by the most successful spinal graft. Admittedly this is fibrous union at least for a time, but it is nevertheless effective. There is as yet only slight proof that the union eventually becomes osseous, but this should be expected since bony surfaces are denuded of cartilage and it would be difficult to believe that such a course was not inevitable. There has been no evidence from an experience of two and one-half years that a disk once well healed will break down again. As a matter of fact this form of treatment probably induces exactly the same result that obtains when nature, slowly over the course of many years, absorbs the affected disk, a solid fusion resulting, or when nature heals a fractured vertebra including the disk. In a single case, three years after partial removal of a disk, roentgenographic proof of an osseous union has been disclosed. After total removal of a disk the process of healing should be the same.

Without the recognition of small nonprotruding (concealed) disks, the treatment would be entirely ineffectual. They are just as easy to recognize as the larger protruding disks and cause precisely the same though, on the whole, less intense symptoms. Their existence is always demonstrable by the mobility test. In this series the concealed disks numbered 33 (75 per cent) as against 11 (25 per cent) that were protruding. This is essentially the same ratio that obtains in disks without spondylolisthesis.

LOCALIZATION OF THE AFFECTED DISKS

The localization of the defective disks is now readily determined by the mobility of the joint when horizontal pressure is made on the spinous processes. When there is increased movement at the joint a defective disk with defective lateral joints is the cause. It is this movement that produces intensification of the backache on coughing and sneezing. This test may or may not lose its value when disks are narrowed in the x-ray films. But such x-ray findings are pathognomonic of a disk, so that this exception to the test is of no importance. However, in spondylolisthesis the mobility test at the spondylolisthetic disk is in many instances useless because the lateral joints may no longer be in apposition; the entire lamina then becomes so loose that it can be freely moved with the finger (8 cases). One can test the actual mobility of the vertebral bodies by direct pressure on them. In 5 cases with very narrow fifth interspaces it could be determined by pressure on the vertebra that there was no movement of the spine at the site of the spondylolisthesis. This means that the backache was due not to the slipped vertebra but from the contiguous disks or lateral joints. Although the mobility test is useless at the site of the spondylolisthesis, it is effective in testing for other disks at the fourth and fifth lumbar vertebrae.

ANALYSIS OF CASES

Thirteen patients were males and 7 females. The ages were from 19 to 54. In the youngest patient symptoms began at 15. Three were under 30, 6 in the thirties, 6 in the forties and 5 in the fifties.

Sixteen of the 20 patients complained of pain on coughing and sneezing; in 2 it was absent and in 2 not noted.

Pain in the lower part of the back was present in all cases.

Pain down both legs was noted in 10, down one leg in 9, and in a single case there was no pain in the leg but only in the hip.

The duration of pain before operation was under one year in 3 cases, from one to five years in 5, from five to ten years in 4 and over ten years in 8. Pain was periodic in 17 and constant in 3.

A definite precipitating cause, usually a fall, heavy lift or severe cough, was elicited in 8; no cause was recognized in 12.

The location of the spondylolisthesis was between the fifth lumbar and the sacrum in 19 cases and between the third and fourth lumbar vertebrae in 1. The grade of spondylolisthesis varied from 0.5 to 1.5 cm. A posterior dislocation of the sacrum existed in 12 and an anterior dislocation in 7 cases. The x-ray examination showed great narrowing at the dislocated joint in all cases except 3; in these the joint was narrowed posteriorly only.

The ankle jerk was diminished or absent in 7 cases and unchanged in 13.

Time since operation was fifteen months the longest, from nine to twelve months in 2 cases, from six to nine months in 5 cases, from three to six months in 5 cases and under three months in 7 cases.

The number of disks was one disk for 2 patients (perhaps none, as these are not cured), two disks for 12 and three disks for 6.

Earlier statistics on defective disks placed 98 per cent of all disks at the fourth and fifth lumbar vertebrae. In this series the third disk was defective in 30 per cent of the cases. This is in keeping with, though somewhat higher than, the incidence of disks at the third lumbar in a large series without spondylolisthesis. There can be no doubt of the much higher percentage of disks at the third lumbar than the earlier figures indicated.

One of the patients in this series had the fourth and fifth disks removed a year ago and has just returned for the removal of the third lumbar (protruding) disk. The fourth and fifth laminas were solid (very loose at the first operation). A recurrence was therefore not possible and the offending disk had to be at the third. Pain in the front of the thigh is always indicative of a defective disk at the third lumbar, but this localizing pain may be absent; i. e., there may still be a defective disk at the third lumbar without pain in the front of the leg.

RESULTS

Since these patients have gone only from two weeks to fifteen months since the operation, the permanence of the results is not claimed; but on the basis of similar treatment of defective disks without spondylolisthesis and extending over a longer period of time I see no reason to expect recurrence later. It is believed that the cures will be permanent. For some time after this

study was begun the very high frequency of multiple disks was not appreciated; for that reason 3 of the patients in this series have returned for removal of an additional disk. The time since operation in these 3 cases has been counted from the last operation.

Two patients in the series have had fusion operations done at the time of the disk extirpations by our orthopedic surgeons, who were none too convinced that removal of the disks would induce fusion of the vertebrae. These cases are not considered in estimating the results. All the patients have been followed. Of the remaining 18 patients (excluding the fusions) 11 have gone more than three months since the operation. Of these 6 are symptom free and 2 are nearly so, having only a little pain for a few minutes in the morning after getting out of bed. Of the remaining 3 patients 2, the only ones with single disk removals, almost surely have another disk. However, 1 of these is greatly improved: the sciatica is gone. She complains of pains in the ribs and neck more than the original backache and sciatica, and in view of her psychogenic background I am reluctant to operate again. The other of these 2 has progressive muscular atrophy in addition to his spondylolisthesis. Heretofore I have refused to operate on perhaps half a dozen patients with known disks (but without spondylolisthesis) when progressive muscular atrophy was also present, but 1 was a relatively big, strong man and I thought he could be benefited for several years. He is not improved, and since his atrophy is increasing I do not feel that he should be operated on again. The remaining patient (operated on eight months ago) is not improved. He is waiting to see if he cannot avoid another operation.

Of the 7 patients who have gone less than three months since the operation, 2 have been operated on before (by myself) and have returned only recently for the removal of another disk in 1 case and 3 disks in another. In the latter case we were unable to find entry into the narrow disk at the spondylolisthesis and the fourth disk appeared normal, so that nothing was really done. Backache and sciatica were excruciating and of course unrelieved. For a time the problem of the patient's relief appeared insuperable. Three weeks later both of the sensory roots of the fifth lumbar nerves were sectioned, without relief. It was thought that perhaps the nerves might be compressed by the extreme dislocation of the sacrum. For weeks thereafter he sat up all night, being unable to lie down without more intense pain. Finally two weeks ago his sciatica became more intense on the opposite side. At operation on this side it was possible to enter and curet the cartilage from the disk at the spondylolisthesis, and concealed disks were removed from both the fourth and the third. He was immediately much improved and at this writing (two weeks after operation) the improvement continues. He has been unable to sleep lying down since the operation.

The remaining 3 patients (who have gone six to ten weeks) have been entirely relieved of sciatica, and the backaches are steadily lessening. One has been complicated by a return of an infection that followed a fusion operation a year earlier.

CONCLUSIONS

1. Subjectively and objectively, spondylolisthesis is precisely like defective intervertebral disks. Only the x-ray differentiated the two conditions.

2. For reasons noted in the text, it is my opinion that spondylolisthesis and defective intervertebral disks are really identical in origin and the treatment is the same; i. e., complete removal of the disks.

3. In at least 90 per cent and probably all of the cases there are two or three disks (including the one at the site of the spondylolisthesis) causing the backache and sciatica, and a cure depends on the recognition and treatment of all the affected disks. The disk at the site of the spondylolisthesis causes no more and, on the whole, less symptoms than the other disks.

4. A cure results when the disks are completely removed. The end result of removal of the disks is fusion of the opposing vertebrae and therefore stabilization of the spine. This obviates the necessity of fusion by bone grafts to the spine.

5. Spinal fusions by grafts are never indicated either for spondylolisthesis or for defective intervertebral disks. Their continued use means that the disks have been improperly recognized or treated, or both.

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ONE STAGE COMBINED RESECTION OF THE RIBS AND SPINAL FUSION FOR SEVERE SCOLIOSIS

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It has long been recognized that in cases of severe thoracic scoliosis the posterior part of the thorax on the convex side of the scoliosis is unduly prominent owing to the vertebral rotation with corresponding deformity of the ribs. Although arrest of the progress of the scoliosis is the prime purpose of therapy, a procedure which, in addition, eliminates this prominence is preferred by the patient. Failure to correct such deformity frequently causes dissatisfaction. Buchman [1] in 1930 reported a case in which he performed resection of the ribs for thoracic deformity owing to the patient's insistence on cosmetic improvement, although the progression of the scoliosis had been halted for a year by a spinal fusion.

Accordingly, in 1927 Whitman [2] proposed resection of the prominent ribs and the use of the resected portions of the ribs as bone grafts to fuse the curved spinal column in such cases. A graft from some other region rather than a Hibbs procedure is required, since the concave side of the scoliosis is almost inaccesible, the laminas and facets being rotated, twisted and overhung by the spinous processes and distorted convexity of the ribs. In some instances operation was done in two stages owing to the general poor condition of the patients and the length of the procedure. He reported 9 cases in which successful results were obtained with the procedure. In discussing Whitman's work, Campbell mentioned noting an increase in expansion of the thorax after he had employed a similar procedure.

From the Section on Orthopedic Surgery, Mayo Clinic (Dr. Bickel), and the Division of Surgery, Mayo Clinic (Dr. Clagett).

Read before the Section on Orthopedic Surgery at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 14, 1944.

1. Buchman, Joseph: Cosmetic Result in a Case of Marked Scoliosis with Rotation of the Ribs Treated by Convex Frame, Spine Fusion and Rib Resection, Am. J. Surg. **8**: 1081-1083 (May) 1930.

2. Whitman, Armitage: A Variation in the Operative Treatment of Structural Scoliosis, J. A. M. A. **89**: 2159-2161 (Dec. 24) 1927.

Cleveland [3] has stated that thoracoplasty itself may produce scoliosis toward the side of the resection. Wenger [4] said that resection of ribs has little influence in producing scoliosis if the transverse processes of the vertebrae are not injured or removed. According to Clagett,[5] careful attention to the integrity of the spinal musculature during thoracoplasty will prevent lateral curvature of the vertebral column.

The cases in which operation is performed are usually the ones in which efforts at conservative treatment have not been attended with success and the scoliosis has become progressively worse. Associated with the scoliosis is the gross distortion of the wall of the thorax. If the disease is allowed to proceed without any form of operative treatment, symptoms referable to the back and an unsightly deformity usually will develop. Since the majority of the patients are adolescent girls, the most frequent complaint mentioned is the deformity.

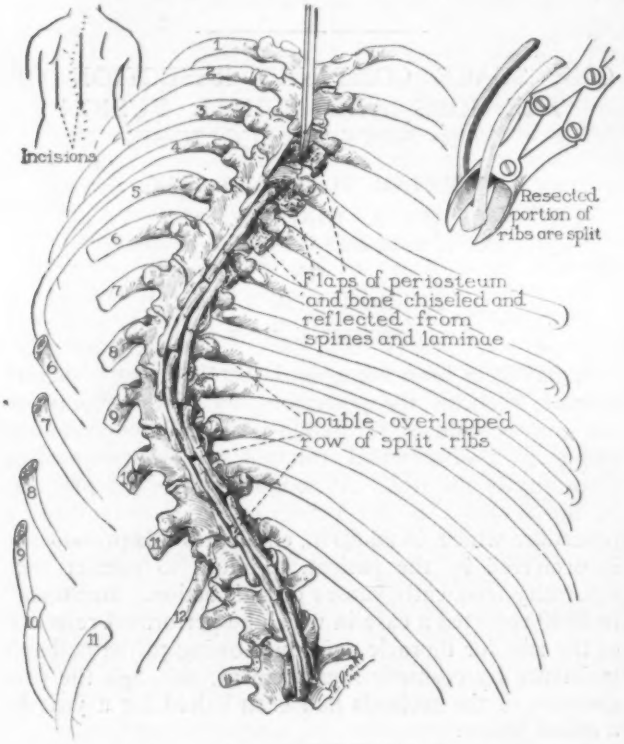
Incisions
Resected portion of ribs are split
Flaps of periosteum and bone chiseled and reflected from spines and laminae
Double overlapped row of split ribs

Fig. 1.—Diagrammatic sketch showing split ribs in place in prepared bed; inset shows incisions most frequently used.

If the deformity can be corrected to some extent and if the scoliosis can be arrested by spinal fusion by the same procedure without undue risk to the patient, we can see no objection to this type of surgical procedure.

Resection of the ribs and the use of the removed segments of the ribs to fuse the spinal column has been performed in 11 cases in the past thirteen years at the Mayo Clinic; in 8 of these cases the operation has been done in the past four years. For seven to ten days before operation the patient is kept on a curved hyperextension frame the apex of which corresponds to the point of greatest convexity of the spinal curve. During this period traction of 6 pounds (2.7 Kg.) is applied to the head and feet. Resection of the ribs and spinal fusion are done as a single procedure, the former by a thoracic surgeon and the latter by an orthopedic surgeon, the two having previously collaborated in deciding on both the number and the portion of ribs to be resected and the number of vertebrae to be fused. Originally a curved incision over the spinal column

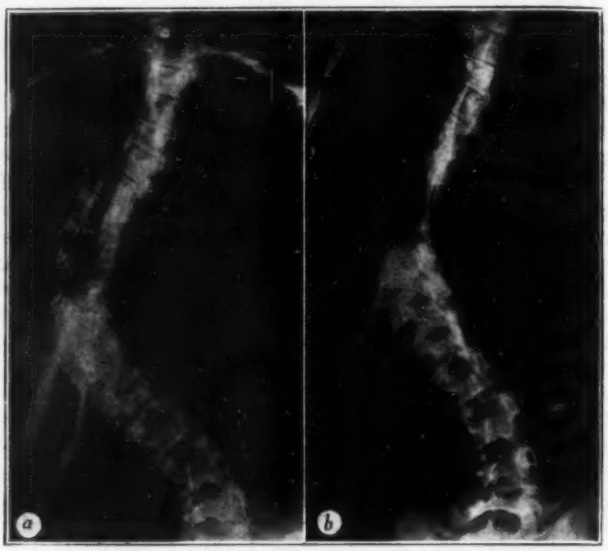

Fig. 2.—*a*, idiopathic scoliosis with long sweeping curve in case 1 prior to operation; *b*, progressing spinal fusion from fourth thoracic to the third lumbar laminas and spinous processes; some improvement has occurred in the deformity.

was used, but this was abandoned as the resulting scar serves to accentuate the deformity. The procedure can be carried out through one long straight incision over the spinal column; but more frequently two parallel incisions are made, one over the convexity of the ribs and one over the region to be fused—as there is less

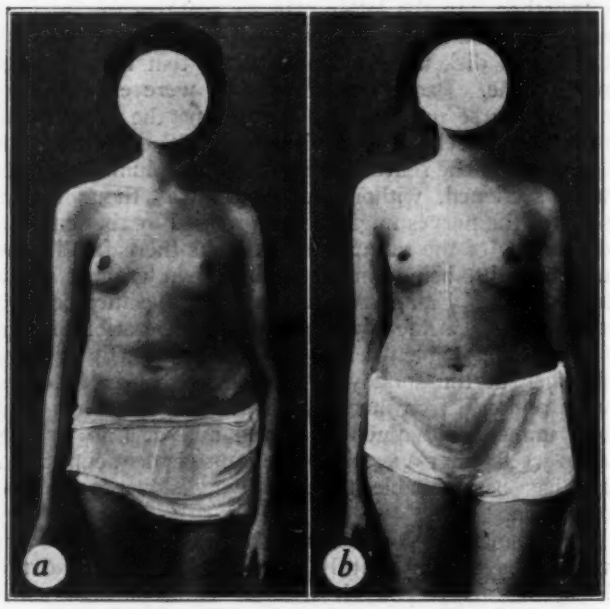

Fig. 3.—Frontal view of patient 1: *a*, before operation; *b*, six months after operation.

likelihood of disturbing the integrity of the spinal musculature. The ribs are resected subperiosteally throughout the extent of the thoracic prominence. The resected portions are then split lengthwise and placed in an overlapping double row along the whole extent of the concave side of the scoliosis curve next to denuded

3. Cleveland, Mather: Lateral Curvature of the Spine Following Thoracoplasty in Children, J. Thoracic Surg. **6**: 595-604 (Aug.) 1937.
4. Wenger, H. L.: Rib Resection in the Treatment of Scoliosis, Arch. Surg. **44**: 119-128 (Jan.) 1942.
5. Clagett, O. T.: Personal communication to the authors.

laminas and spinous processes from which cortical and cancellous bone have been reflected laterally (fig. 1). Their own curve corresponds strikingly to that of their spinal bed and they may be partially broken, like a greenstick fracture, to obtain closer coaptation. They are held in place by closure of the overlying muscles and fascia. No graft from any other source is necessary; there is always more than enough bone from the resected portions of the ribs. Immediately after operation the patient is kept on a straight Bradford frame for two weeks, being turned from the supine to the prone position and vice versa at regular intervals. The use of the previously mentioned traction and the hyperextension frame is then resumed for four weeks; a plaster body jacket then is applied by using a Goldthwaite frame. The patient is permitted to be up and around for a week. The cast then is removed and a new one is applied from the occiput and chin to include the iliac crests. The patient is held in upright suspension during application of the cast. The second cast is worn for approximately four months and then it is

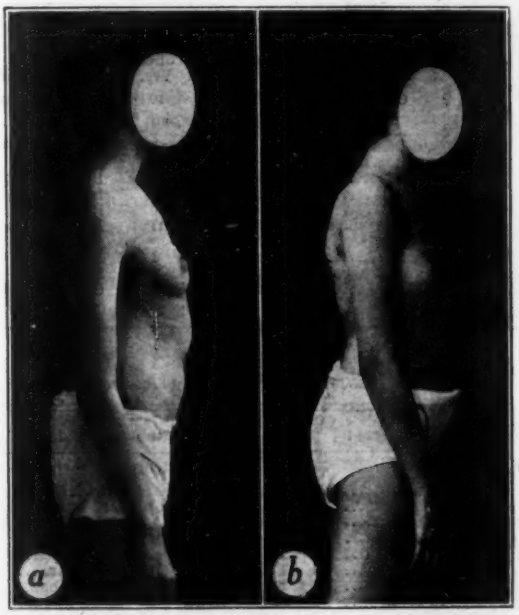

Fig. 4.—Lateral view of patient 1: *a*, before operation; *b*, six months after operation.

replaced by a corset or Taylor brace, which is used for six months. At this time such activities as swimming and breathing exercises are begun. The brace or corset is gradually discarded and there is a progressive return to normal activity.

REPORT OF CASES

We shall report cases which are representative of the 11 cases in this series:

CASE 1.—A girl aged 15 years, seen first at the clinic on May 21, 1935, had had a minor fall three and a half years previously, and a deformity of the spinal column had been noted subsequently. She had a severe thoracolumbar scoliosis on the right side with great deformity of the ribs (figs. 2 *a*, 3 *a*, 4 *a* and 5 *a*). On May 30, 1935 portions of the seventh to the tenth ribs inclusive were removed and rib grafts were inserted from the fourth thoracic lamina and spinous process down to include the second lumbar lamina and spinous process on the concave side of the curve. Her postoperative course was uneventful and she was dismissed from the hospital in fifty-two days wearing the usual cast applied in suspension, which included the chin and occiput and extended well onto the iliac crests.

When the patient returned to the clinic for examination on Nov. 6 and again Dec. 17, 1935 the spinal column apparently was solidly fused and examination revealed that the deformity was greatly improved (figs. 2 *b*, 3 *b*, 4 *b* and 5 *b*). Her subsequent course has been entirely satisfactory and no progression of the deformity has taken place in the past nine years.

Fig. 5.—Posterior view of patient 1 with back flexed to accentuate thoracic deformity: *a*, before operation; *b*, six months after operation.

CASE 2.—A woman aged 22, seen first at the clinic on Aug. 12, 1942, had noted a curvature of the spinal column for the past nine years. Progression of the curve was thought to have occurred two years previously, but the patient had not complained of tiredness and aching in the back on overexerting herself. There had been some increase in the prominence of the left hip, and it was thought by the examining physician that the lumbar curvature was increasing. She presented a gross right thoracolumbar scoliosis with a single sweeping curve (figs. 6 *a*, 7 *a* and 8 *a*).

Operation was performed on Feb. 4, 1943 after a preliminary period of traction. Prominent portions of the sixth to the

Fig. 6.—Idiopathic scoliosis in case 2: *a*, before operation; *b*, solid fusion of grafts from the fifth thoracic to the third lumbar laminas and spinous processes one year after operation; there has been some progression of the scoliosis.

ninth ribs inclusive were resected on the right side and used as grafts for the prepared laminas and spinous processes of the fifth thoracic vertebra to the third lumbar vertebra. The postoperative course was marred by some respiratory difficulty because of a pleural effusion on the twenty-sixth postoperative day. Eight hundred cc. of serosanguineous fluid was aspirated

on this day and 600 cc. on the following day, with rapid subsidence of symptoms until she was dismissed from the hospital wearing a cast on the seventieth day after her admission.

The patient returned to the clinic for an examination on July 20, 1943. The cast was removed and a brace applied. On Feb. 11, 1944 she was examined again and roentgenograms

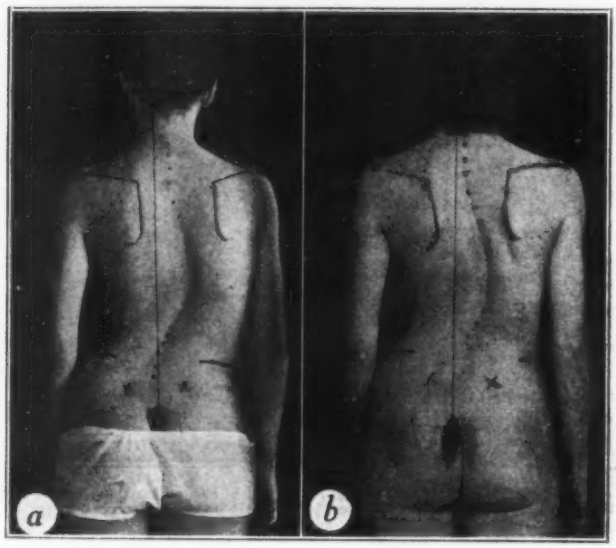

Fig. 7.—Posterior view of patient 2: *a*, before operation; *b*, one year after operation.

and photographs were made (figs. 6 *b*, 7 *b* and 8 *b*). She had no symptoms and had increased her activities to include swimming and dancing. She was told to assume normal activity gradually. In a recent letter she said that her progress has been satisfactory.

CONSIDERATION OF CASES

In this group of 11 cases the characteristic features corresponded to those generally reported.[6] Ten of the patients were females and 1 was a male; their ages

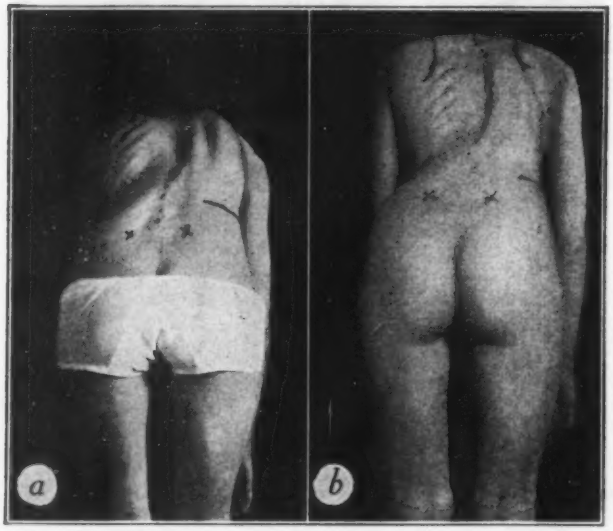

Fig. 8.—Appearance of patient 2: *a*, before operation, showing rib deformity with spinal column flexed; *b*, improvement in the deformity of the thoracic cage one year after operation.

varied from 11 to 22; the average age was 16 years. The scoliosis had been noticeably present for from one to thirteen years; the average duration was six years. In 10 cases the scoliosis was on the right side; in 1 case it was on the left. In 3 cases the scoliosis was congenital (fig. 9) and in 1 case it occurred after poliomyelitis. No known cause could be determined in the other cases. Previous therapy, which had included braces, casts and exercises and manipulation, had failed to halt the progress of the scoliosis. In 2 cases no treatment had been employed (table 1).

The number of involved ribs ranged from three to six. Usually, from 2 to 5 inches of the respective ribs was resected. The amount of the ribs resected varied with the position of the rib as related to the scoliosis; it decreased as the distance above or below the apex of the curve increased. Portions of the first, second or twelfth ribs never were resected; portions of the third and eleventh ribs were resected in only 1 instance. The number of vertebrae fused ranged from eight to fourteen —the whole dorsal vertebral curvature was grafted in each instance. Lumbar vertebrae were included in the grafting procedure in all but 2 cases (table 2).

TABLE 1.—*Clinical Data*

Case	Age, Yrs.	Sex	Etiology	Direction of Thoracic Curvature	Known Duration of Scoliosis, Yrs.	Previous Therapy
1	15	♀	Congenital	Right	10	Casts, braces and exercises
2	15	♀	.....	Right	3½	Cast
3	14	♀	Congenital	Right	2½	Brace
4	20	♀	.....	Right	7	Brace
5	18	♀	.....	Left	13	Braces
6	17	♂	.....	Right	2	Brace
7	22	♀	.....	Right	10	Exercises
8	11	♀	Congenital	Right	11	Exercises and stretching
9	16	♀	.....	Right	1	None
10	17	♀	Poliomyelitis	Right	6	None
11	15	♀	.....	Right	2	Casts, corset and brace

TABLE 2.—*Ribs Resected and Vertebrae Fused*

Case	Ribs Resected		Vertebrae Fused	
	Ribs	No.	Vertebrae	No.
1	Fourth to ninth.....	6	Upper thoracic.....	..
2	Seventh to tenth.....	4	Fourth thoracic to third lumbar..	12
3	Sixth to eighth.....	3	Fifth thoracic to second lumbar..	10
4	Seventh to tenth.....	4	Third thoracic to third lumbar....	13
5	Sixth to eighth.....	3	Third thoracic to tenth thoracic..	8
6	Third to seventh.....	5	Third thoracic to first lumbar.....	11
7	Sixth to ninth.....	4	Fifth thoracic to second lumbar..	10
8	Fourth to seventh...	4	Second thoracic to second lumbar	13
9	Fifth to ninth.....	5	Fifth thoracic to first lumbar.....	9
10	Sixth to eleventh....	6	Second thoracic to third lumbar..	14
11	Fourth to eighth....	5	Third thoracic to third lumbar....	13

In 3 cases it was deemed advisable to administer transfusions of blood as a supportive measure. One thousand cc. of blood was transfused in 2 cases and 500 cc. in the other case. In 3 cases the operation was followed by pleural effusion. In each of these cases the effusion was situated on the side of the rib resection. In 1 a massive effusion occurred the fourth week after operation. Aspiration of 800 cc. of fluid relieved the symptoms; thereafter the effusion was minimal, until it disappeared the following week. In another case the effusion appeared on the twelfth day after operation and persisted until the fifth week before it subsided. The patient had some slight difficulty in respiration and a low grade fever during this period. In the third case there was slight respiratory distress from the fifth to the seventh day and a slight pleural effusion was noted; improvement then took place spontaneously. In these cases there was no other complication and none of the patients died. The patients withstood a rather extensive operation very well, and in no case was it necessary to interrupt the procedure or have concern over

6. End Result Study of the Treatment of Idiopathic Scoliosis: Report of the Research Committee of the American Orthopaedic Association, J. Bone & Joint Surg. **23**: 963-977 (Oct.) 1941.

the patient's condition. If after the resection of the ribs further operation is not advisable, the ribs can be preserved by refrigeration and used at a subsequent operation for grafting of the spinal column.

Results.—In this series of 11 cases follow-up data were obtained for nine months to twelve years after operation. In 3 cases the operation has been done within the past year. In all cases fusion was solid at the end of six to nine months. In 3 cases in which operation has been performed rather recently it cannot be stated definitely that the deformity will not progress; however, improvement had occurred at the time this paper was written. In 1 case a very slight increase in the spinal curvature has taken place since operation. In 1 case, in which operation was performed a year and eight months ago for congenital scoliosis with a single sweeping curve, there has been a definite increase in the scoliosis. Fusion was accomplished from the second thoracic to the second lumbar vertebrae and the recent breakdown is apparently in the lower three lumbar vertebrae. Another fusion operation is being contemplated. In the other cases the deformity has remained stationary or has improved slightly.

Fig. 9.—Structural scoliosis caused by congenital hemivertebra (tenth thoracic).

Satisfaction concerning the cosmetic end results was expressed in all cases. In 1 case, however, the vertebral rotation was so extreme that the vertebrae were just under the deformed ribs and their transverse processes caused the scoliotic prominence in the main to be retained after resection of the ribs. Consequently,

Fig. 10.—Idiopathic scoliosis: *a*, before operation, showing deformity of ribs; *b*, regeneration of resected ribs on the right side six months after operation.

in this case less improvement than expected was obtained. Roentgenographic examination of the ribs six weeks after resection revealed early regeneration of the resected portions from the remaining periosteum; six months after operation extensive regeneration had occurred and the new portion conformed to the corrected contour of the thoracic wall (fig. 10). Clinically, the thoracic cage is rigid after about six months.

COMMENT

This paper is based on 11 cases of scoliosis in which resection of ribs and immediate spinal fusion was performed to correct the deformity of the thoracic wall and arrest the scoliosis. It is felt that this procedure is worthy of more extensive use and has a definite place in the treatment of severe scoliosis.

ABSTRACT OF DISCUSSION

DR. EWARD L. COMPERE, Chicago: My experience in the use of this method has not been wide. I have reviewed records of 9 patients in whom rib resection and fusion of the spine with the resected ribs, in the treatment of severe scoliosis, had been done by me or by one of my associates. Five were operated on within the past two years. This procedure has a definite place in the field of orthopedic surgery. However, certain hazards should be considered. Bisgard, while on the staff at the University Hospital in Ann Arbor, reported a series of cases of scoliosis that developed following rib resections for thoracoplasties. In Bisgard's patients the convexity of the spine was toward the side from which the ribs had been removed. The ribs are of importance in maintaining the shape of the thorax and they act as struts to support the spine itself. Especially are they important in growing children. It is a mistake to remove ribs in young children. The growing child who has lost support from the ribs may develop a progressive curvature in spite of the fact that the resected ribs have been used to fuse the spine. In cases in which I have used ribs for resection I have not attempted to correct the curvature beforehand. I have selected for this operation older patients whose deformity was so advanced that it seemed futile to attempt correction. In the drawing by which the authors illustrated the technic of their operation the ribs had been resected at a point 2 or 3 centimeters from their vertebral articulations. When the vertebral ends of the ribs are left long they may protrude so sharply that they create a ridgelike projection that is fully as objectionable as the original deformity. In my opinion this operation should be carried out in two or more stages if the extent of the fusion must include more than six vertebral segments.

DR. DANIEL H. LEVINTHAL, Chicago: I have had no personal experience with this method because I have almost always been contented to use large, long, either single or double tibial grafts, with the addition of multiple chip grafts, especially in the area between the curvature (if any remains) and the straight graft. In my service at Cook County and Michael Reese hospitals we start saline and glucose and give 500 to 1,000 cc. of whole blood during the operative procedure. We use two surgical teams. These two teams can work at the same time. The tibial graft can be removed at the same time that the bed is being prepared. Most patients, despite arrest or correction of the scoliosis, feel that since they have submitted to extensive surgery the rib and scapular convexity should have been corrected. Since most of the patients are females, many of them object to the resultant scars. I wonder how many of the authors' patients complained about the two long scars. I should like to ask whether after rib resection the inferior angle of the scapula has been sutured downward and medially in an effort to correct its winged position and in an effort to pull that portion of the shoulder girdle posteriorly to a corrected position. I have always made it a point in the preoperative discussion with the parents to state that I will attempt to correct or arrest the scoliosis, and I mention that the anterior projection of the shoulder—usually it is the right shoulder—and the convexity of the vertebrae (the so-called razor back deformity) will remain. One point which has not been mentioned is the opposite convexity of the left anterior ribs with projection of the breast and ribs forward. I am wondering whether that left anterior projection was increased when the circumference of the rib cage was interrupted by the multiple rib resections.

DR. W. H. BICKEL, Rochester, Minn.: The literature is particularly devoid of any reports on these cases, and it is only by an accumulation of various series of cases that we shall be able to form a definite opinion as to the value of this procedure. The amount of rotation which takes place in a spine after fusion is a rather moot question. If the fusion is solid it is difficult to see how the remaining rib nubbins can cause difficulty. One patient in our series did complain of tenderness over the projecting portion of the remaining rib. Dr. Levinthal mentions saving the transverse processes in the resection of the rib. I think that has been emphasized in the literature by those performing thoracoplasties. They say if one does not damage the transverse process no scoliosis will develop. Dr. Clagett feels that the integrity of the spinal musculature is more important than the conserving of the transverse processes. That is one of the reasons for the two incisions we have been using. In our cases there has been no apparent increase in the actual deformation of the thoracic cage. It seems reasonable to me to assume that if one decreases the deformity in the posterior ribs on the opposite side the anterior deformity will cave in and be less prominent following the resection of the ribs. I think our photographs and the observations of these patients bear out that point. There have been no recorded complaints regarding the scars. Of course, with midriff bathing suits, some complaints may ensue in the future. We have never used scapular fixation. It has been our method to resect the ribs high enough so that the scapula will not be pushed out, rather than to try to fix the scapula over bulging ribs posteriorly.

THE PREVENTION AND ATTENUATION OF INFECTIOUS HEPATITIS BY GAMMA GLOBULIN

PRELIMINARY NOTE

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PHILADELPHIA
AND
CAPTAIN JOHN R. NEEFE
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Infectious hepatitis (epidemic hepatitis, infective hepatitis) has been stated to be one of the most important diseases of the present war.[1] It has also been a serious problem in civilian populations throughout the world. Owing primarily to the lack of knowledge concerning the etiologic agent and its mode of transmission, adequate methods of prevention and control have not as yet been developed. It is our purpose in this preliminary report to present data which suggest that gamma globulin [2] from large pools of adult human serum may be effective in the control of certain epidemics of this disease.

Parenteral injections of homologous blood products (whole blood, pooled plasma or serum, pooled measles and mumps convalescent plasma, and so on) have occasionally been followed by hepatitis. These blood products have usually been derived from single individuals or, in the case of pools, from relatively small numbers of young adults. The frequency with which small pools contain a "hepatitis producing" agent suggests that such an agent might be expected in large pools with even greater frequency. Yet several thousand injections of gamma globulin (used for prevention and attenuation of measles), prepared from large pools of adult plasma, have not been followed by hepatitis. It has been shown experimentally that certain virus agents, added to plasma which does not contain their specific neutralizing antibodies, are not inactivated by the process of fractionation and subsequently can be demonstrated in the globulin fraction II + III.[3] Thus the absence of hepatitis following the use of gamma globulin is not necessarily explained by inactivation of the causative agent by the process of fractionation of plasma. The neutralization of the "hepatitis producing" agent by antibodies in gamma globulin would offer, however, a possible explanation of the apparent absence of hepatitis following the injections of gamma globulin.

Because the evidence thus far available suggests that the virus agent responsible for epidemic or infectious hepatitis is present in the blood during the preicteric and early icteric phases of the disease, it seemed reasonable to postulate that such neutralizing antibodies in gamma globulin might possibly be effective in aborting or in attenuating this disease if administered during the incubation period or preicteric stage. The relatively long incubation period of infectious hepatitis and the delayed onset of the icteric stage are time factors which would facilitate the use of gamma globulin for this purpose. These theoretical and factual observations led to the use of gamma globulin in an extensive epidemic of infectious hepatitis that occurred during August and September 1944 in a summer camp for boys and girls.

The epidemic, details of which will be reported elsewhere, began on Aug. 1, 1944 and by August 14, when we were notified of its existence, approximately 80 persons had developed hepatitis. The occurrence of new cases on the 15th and 16th of August suggested that the entire camp population had been or would be exposed to the causative agent and that many others of the group could be expected to develop the disease. The situation seemed favorable, therefore, for a critical test of the hypothesis that gamma globulin might include specific antibodies capable of inactivating, partially or completely, the causative agent of infectious hepatitis. Using an arbitrary intramuscular dosage of 0.15 cc. per pound of body weight, sufficient gamma globulin [4] was available for the injection of 53 persons. Of 159 well boys between the ages of 6 and 15 living under the same environmental conditions in the boys' camp, 29 were injected with globulin, leaving 130 as controls. Of 132 well females between the ages of 6 and 30 living in the girls' camp, 16 were injected with globulin, leaving 116 as controls. Eight other men between the ages of 16 and 40 from miscellaneous camp groups also were injected. As expected, many additional cases of hepatitis developed during the five weeks following the globulin injections. In the accompanying table the incidence of hepatitis in the injected groups is compared with that in the control groups. In the discussion of these data the term hepatitis includes both icteric and nonicteric cases. Approximately one third of those who became ill with the typical symptoms failed to develop jaundice. Liver function studies on representative nonicteric cases confirmed the diagnosis of hepatitis without jaundice. The data on cases of hepatitis with jaundice are shown separately because they were usually more severe and of longer duration than the nonicteric cases. The boy and girl groups also

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This investigation was aided in part by the Commission on Measles and Mumps, Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, Preventive Medicine Service, Office of the Surgeon General, U. S. Army, Washington, D. C.

1. Witts, L. J.: Some Problems of Infective Hepatitis, Brit. M. J. 1: 739-743 (June 3) 1944.

2. Cohn, E. J.; Oncley, J. L.; Strong, L. E.; Hughes, W. L., Jr., and Armstrong, S. H., Jr.: The Characterization of the Protein Fractions of Human Plasma, J. Clin. Investigation 23: 417-432 (July) 1944.

3. Enders, J. F.: Personal communication to the authors. Cohn and others.[2]

4. The gamma globulin employed in this study (lots 12 II GI L329 and II GI L371) was prepared by the Harvard Plasma Fractionation Laboratory. Lot 12 II GI L329 was an experimental lot prepared under conditions slightly different from those employed in the preparation of the standard fractions being distributed for measles prophylaxis.

have been presented separately in the table because the course of the epidemic suggested that these two groups were not exposed to the disease at the same time, a fact which is of importance in the interpretation of the findings. The results in the 8 injected males from the miscellaneous camp groups are not shown separately in the table because of the lack of a satisfactory control group for comparison. However, these have been included in the data referring to the entire camp group which show the results in the total injected group; the controls for this group include, in addition to the boy camper and female control groups, those in miscellaneous camp groups who were well at the time of the globulin injections. Such a combination is permissible because the final incidences in all the camp groups indicate that all were eventually exposed to the disease. The statistical significance of these data was tested by the chi square method.

The results show that the incidence of hepatitis in the groups injected with gamma globulin was significantly lower than in the control groups. In respect to the boy camper group, 13.3 per cent of those injected developed hepatitis as compared with 69 per cent of the controls. Overt jaundice appeared in 46 per cent of the controls, but this was not observed in any of those who received globulin. In the female group, hepatitis occurred in 70.6 per cent of the controls but in only 18.7 per cent of the injected group. Overt jaundice developed in 45 per cent of the controls but in only 18.7 per cent of those injected. In terms of the combined groups, representing 53 persons injected with globulin and 278 controls, hepatitis occurred in 67 per cent of the controls but in only 20.8 per cent of those injected. Of the 53 persons receiving globulin, not one developed visible icterus of the skin. However, 3 of the 16 girls who received globulin developed scleral icterus, which, however, persisted for only four, five and seven days respectively. The average duration of icterus in the 34 controls for whom complete data are available was 14.2 days. These observations suggest that the effect of gamma globulin in the 3 girls was an attenuation of the disease.

The onset of hepatitis in the 11 persons who received gamma globulin occurred during the first ten days after the globulin had been injected. No additional cases occurred among the injected group after this time. However, cases continued to appear among the controls for thirty-two days after the date of the globulin injections. This would suggest that the administration of gamma globulin late in the incubation period resulted in attenuation, rather than prevention, of the disease. However, the data indicate that the disease was entirely prevented in some cases, this probably occurring in those who received the globulin early in the incubation period. This is supported by the fact that the best results were obtained in the boy camper group. It is probable that most of this group received globulin earlier in the incubation period than did the girls, because the epidemic began in the boys' camp approximately a week later than in the girls' camp. The apparent difference in the effectiveness of gamma globulin in these two groups would seem to be satisfactorily explained on this basis.

The results indicate, therefore, that gamma globulin is capable of preventing or attenuating infectious hepatitis when administered to exposed persons during the incubation period of the disease. They also suggest that the best results are obtained when the globulin is injected early in the incubation period. Gamma globulin thus offers promise of being of great value in the prevention and control of other epidemics of infectious hepatitis, and, since no other satisfactory methods for the control of this disease have been developed, further trials of gamma globulin in such epidemics seem definitely indicated. The effect of globulin in infectious hepatitis is similar to that observed following its use in measles,[5] In addition to its preventive value in measles, globulin is often of therapeutic value if injected soon after the onset of the initial symptoms; it seems possible that gamma globulin also might be of therapeutic value in infectious hepatitis if administered early in the preicteric period. For this reason the use of gamma globulin as a therapeutic measure in early hepatitis would also seem to be worthy of trial.

Effect of Gamma Globulin in Infectious (Epidemic) Hepatitis

Group and Age Ranges	Status	Number	Hepatitis		Hepatitis with Jaundice		Chi Square *	
			Number	Per Cent	Number	Per Cent	Hepatitis	Jaundice
Boy campers (6-15).....	Injected with globulin	29	4	13.3	0	0	29.4	21.7
	Controls.....	130	90	69.0	60	46		
Females (6-30).....	Injected with globulin	16	3	18.7	3	18.7	16.59	4.04
	Controls.....	116	82	70.6	52	45		
Entire camp group (5-40).....	Injected with globulin	53	11	20.8	3	5.7	37	27.5
	Controls.....	278	185	67.0	125	45		

* Except for the test for the incidence of hepatitis with jaundice in the female group, chi square values computed by the method of the fourfold independence table indicate that such results would be expected by chance less often than one in a thousand. For the one exception, however, the probability is less than one in twenty trials.

SUMMARY

During an epidemic of infectious hepatitis in a summer camp for boys and girls gamma globulin was injected intramuscularly into 53 of 331 persons who at the time showed no signs of the disease. The results, which are statistically significant, indicate that gamma globulin is capable of preventing or attenuating infectious hepatitis when administered to exposed persons during the incubation period of the disease. This effect is comparable to that observed with the use of gamma globulin in measles. Although the data suggest that the best results are obtained when the globulin is injected early in the incubation period, it seems possible that, as in measles, it may also be of therapeutic value if given early in the preicteric stage of hepatitis. The results obtained in this epidemic are sufficiently encouraging to warrant further trials of gamma globulin in the control of future epidemics of this disease. This is especially desirable because no other effective control measures have as yet been developed.

1740 Bainbridge Street, Philadelphia 46.

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TRANSMISSION OF PRIMARY ATYPICAL PNEUMONIA TO HUMAN VOLUNTEERS

COMMISSION ON ACUTE RESPIRATORY DISEASES

FORT BRAGG, N. C.

Etiologic studies of primary atypical pneumonia have been described in several recent publications.[1] It has been shown that bacteria,[2] rickettsias,[3] fungi [4] and viruses, particularly those of the psittacosis group,[5] may produce the syndrome of atypical pneumonia. No etiologic relationship to these known agents, however, has been demonstrated in the majority of cases, and the assumption has been made that an unknown virus is the causative factor.

Various pneumotropic agents have been isolated in animals,[6] but confirmation of the relationship of these agents to the human disease has been lacking. During the past three years, extensive animal experimentation has been undertaken by the Commission on Acute Respiratory Diseases.[7] Sputums, throat washings and blood obtained from patients, and pathologic material from fatal cases, have been utilized. Various routes and methods of inoculation have been employed. No bacteria or viruses bearing a direct etiologic relationship to the human disease have been isolated in the developing chick embryo, in chickens, doves or Java rice birds and in seven mammalian species. In view of these negative results, attempts have been made to transfer primary atypical pneumonia in man. Vance, Scott and Mason [8] failed to establish the infection in 7 volunteers inoculated intranasally with filtered pooled sputum and nasal washings.

Our purpose in this communication is to report the successful transmission of primary atypical pneumonia to human volunteers by means of bacteria-free filtrates. Previous experiments [9] had indicated that this syndrome could be produced in certain individuals by inoculation with unfiltered throat washings and sputums.

MATERIALS AND METHODS

Forty-two conscientious objectors, all of whom had volunteered for the experiment, were segregated in individual rooms of a hotel. Eighteen men were housed on the third floor and 24 on the second floor; the latter were separated geographically into two groups of 12 each by temporary partitions in the hallways.

Clinical, roentgenographic and laboratory examinations served to eliminate any individuals with acute or chronic, organic or infectious diseases. Rigid quarantine was maintained during the eight week course of the experiment in order to prevent chance exposure to atypical pneumonia through outside contact. Strict isolation technics were instituted and maintained by the attending staff. Food was prepared in a common kitchen and distributed on individual compartment trays. The volunteers were observed for symptoms and signs of respiratory disease on alternate days before inoculation and daily after inoculation. Frequent roentgenograms were taken. Determination of the total leukocyte and differential counts and of the erythrocyte sedimentation rate (Rourke-Ernstene method) [10] were performed repeatedly. Throat cultures were taken weekly before and after inoculation. Specimens of serum were collected for serologic study at weekly intervals.

The inoculum consisted of throat washings and sputum collected from 6 cases of atypical pneumonia produced in a previous experiment by inoculation of untreated and filtered throat washings and sputums from cases in a military hospital. Each of the experimentally

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This investigation was supported through the Commission on Acute Respiratory Diseases, Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, Preventive Medicine Service, Office of the Surgeon General, United States Army, and by grants from the Commonwealth Fund, the W. K. Kellogg Foundation, the John and Mary R. Markle Foundation and the International Health Division of the Rockefeller Foundation to the Board for the Investigation and Control of Influenza and Other Epidemic Diseases for the Commission on Acute Respiratory Diseases.

Members and professional associates of the Commission on Acute Respiratory Diseases are John H. Dingle, Major, M. C., A. U. S., Director; Theodore J. Abernethy, Major, M. C., A. U. S.; George F. Badger, Captain, M. C., A. U. S.; Joseph W. Beard, M.D.; Norman L. Cressy, Major, M. C., A. U. S.; A. E. Feller, M.D.; Irving Gordon, M.D.; Alexander D. Langmuir, Captain, M. C., A. U. S.; Charles H. Rammelkamp, M.D.; Elias Strauss, Captain, M. C., A. U. S., and Hugh Tatlock, 1st Lieutenant, M. C., A. U. S.

The Commission was assisted by the technical staff of the laboratory: Pfc Alexander Adler, Ruth Chase, T/5 D. G. Foltz, Corp. M. H. Kaplan, Elizabeth Krakauer, T/5 G. J. Leuty, Dorothy Mickle, Second Lieutenant W. A. Mickle, Sn. C., Josephine P. Neeley, Barbara A. Mulliken, First Lieutenant T. J. Oliver, Sn. C., First Lieutenant R. L. Robinson, Sn. C., and Irene Salamandra.

These studies were made possible by the cooperation of the administrative staffs of Selective Service, Camp Operations Division, and the National Service Board for Religious Objectors, the American Friends Service Committee, Brethren Service Committee and the Mennonite Central Committee. Cooperation and assistance were given by Brig. Gen. H. C. Coburn Jr., M. C., Col. J. C. Williams, M. C., Col. R. C. Tatum, M. C., Lieut. Col. W. B. Daniels, M. C., Lieut. Col. F. K. Herpel, M. C., Lieut. Col. F. J. Pohle, M. C., Lieut. Col. A. Blumberg, M. C., Capt. D. G. Walker, M. C., Capt. Michael Levin, M. C., and Capt. B. L. Heffner, M. C.

First Lieut. Clare B. Kwash, A. N. C., Second Lieut. Catharine E. Hammond, A. N. C., and Mrs. Catherine Kruse rendered invaluable service as nurses. T/4 Albert Aan gave material assistance as x-ray technician. Mr. O. E. Stone acted as assistant director of the C. P. S. unit throughout the course of the experiments. Messrs. J. H. Burrowes, R. F. Landis, M. H. Leffel, D. H. McBee, W. M. McMillan, D. W. Mott, P. S. Olmsted, Edward Outland and T. F. White voluntarily served as attendants.

The members of the Commission are grateful to the volunteers themselves, without whom these experiments would have been impossible.

(Footnotes continued in next column)

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produced illnesses had the characteristic of primary atypical pneumonia. During the course of their disease, all of the donors developed cold agglutinins to group O human red cells. The throat washings and sputums were pooled in proportion of 1 part of sputum to 5 parts of throat washings. Approximately one third of this pooled material was filtered through sintered glass and Seitz filters, another third was autoclaved at 15 pounds pressure for ten minutes and the remainder was untreated. Aerobic and anaerobic cultures of the filtered and autoclaved material were sterile. Culture of the untreated material showed the following organisms: alpha, alphá and gamma streptococci, Staphylococcus aureus, diphtheroids and gram-negative cocci (not further identified).

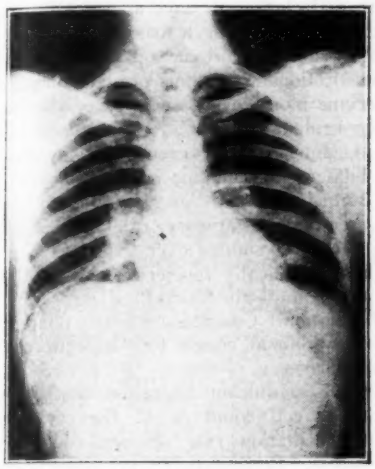

Fig. 1 (case 146).—Appearance of lungs, September 14.

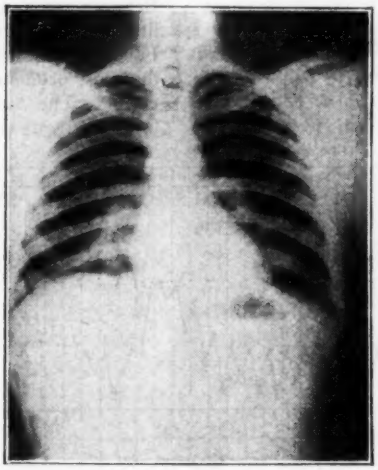

Fig. 2 (case 146).—Appearance of lungs, September 16.

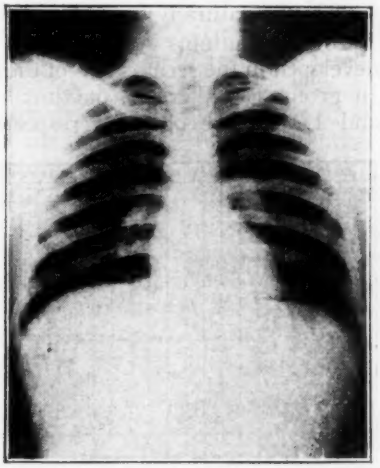

Fig. 3 (case 146).—Appearance of lungs, September 30.

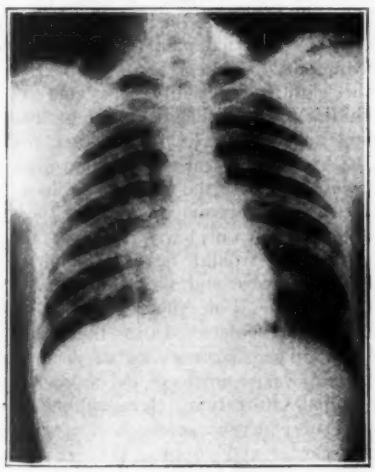

Fig. 4 (case 137).—Appearance of lungs, September 22.

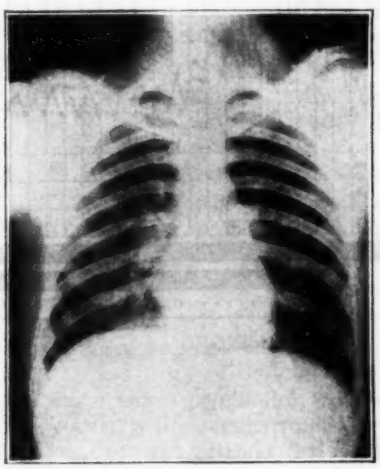

Fig. 5 (case 137).—Appearance of lungs, September 25.

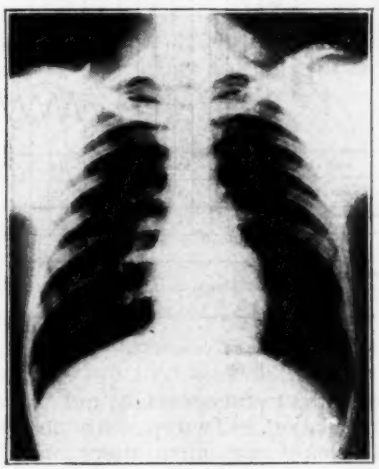

Fig. 6 (case 137).—Appearance of lungs, October 4.

Inoculations of autoclaved material were given to the first group of 18 volunteers (group A) after three weeks of isolation. Four days later a second group of 12 men (group B) were inoculated with filtered material. The final group of volunteers (group C) received untreated inoculum after a further interval of eight days. The inoculations were given outdoors. Each volunteer received a total inoculum of 10 cc. administered in three equally divided doses. The material was sprayed into the nose and throat in synchronization with deep inspiration by means of an atomizer and vaporizer.[11] A tank of nitrogen was used as a source of pressure to vaporize approximately half of the inoculum given each man.

RESULTS

In the accompanying table are summarized the number and character of illnesses resulting from the various types of inoculum. Three patients receiving filtered inoculum (group B) and 3 receiving untreated material (group C) developed characteristic symptoms, signs and roentgenologic evidence of primary atypical pneumonia. No individual inoculated with autoclaved material (group A) was similarly affected.

Onset of disease in 3 patients in group B (filtered) occurred on the twelfth, thirteenth and fourteenth days respectively after inoculation. Onsets occurred earlier in the 3 patients receiving untreated material (group C); 2 developed on the seventh day and 1 on the eighth day after inoculation.

The symptoms and signs observed at onset and during the course of the disease did not differ materially in the two groups. In general, illnesses were milder in patients in the "filtered" group.

11. Made by the Vaponefrin Company.

Roentgenographic lesions were characteristic of those seen in moderately severe cases of primary atypical pneumonia in military and civilian hospitals. In 3 individuals single lobes were involved, in 2 patients bilateral lesions were observed, and in 1 individual all five lobes were involved in association with a critical illness. The appearance, development and regression of the pneumonic lesions in patients from both the "filtered" and "untreated" groups bore a striking similarity to those seen in the naturally occurring disease.

Cold agglutinins for group O human erythrocytes developed in the serums of 5 of the 6 cases of pneumonia. In group B (filtered), maximum titers of 128, 1,024 and 1,024 were obtained respectively on the twenty-seventh, twenty-seventh and twentieth days following inoculation. Two patients in group C (untreated) developed maximum titers of 512 and 8,192 on the twenty-first and twenty-sixth days respectively after inoculation. A third patient did not develop cold agglutinins at any time.

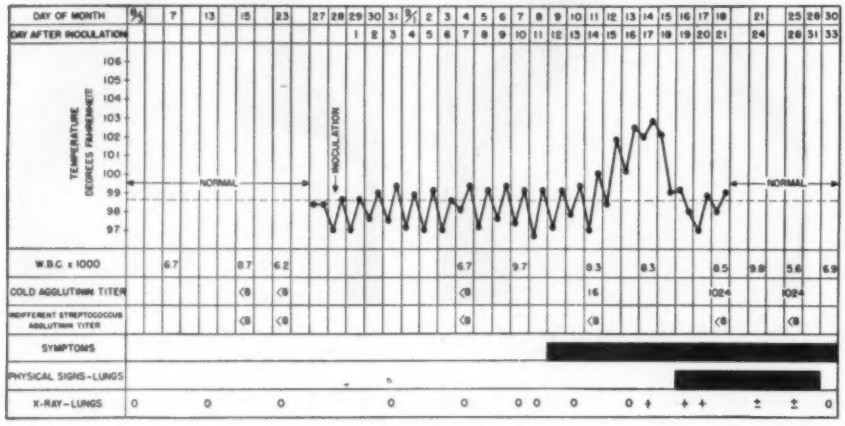

Fig. 7 (case 146).—Clinical course of patient given filtered inoculum.

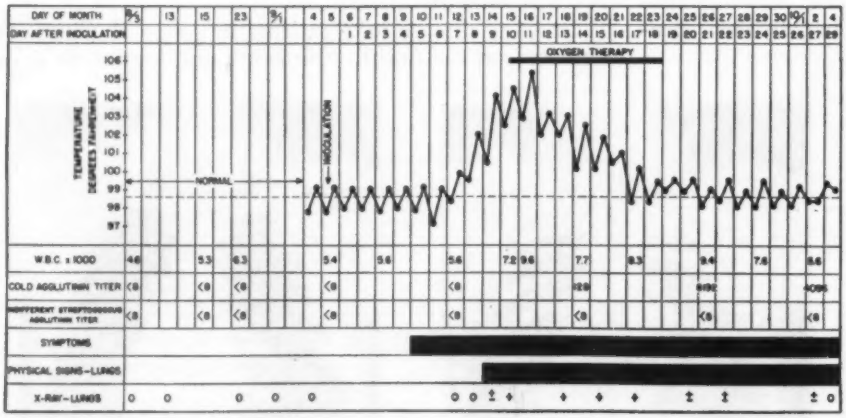

Fig. 8 (case 137).—Clinical course of patient given untreated inoculum.

A rise in titer of agglutinins for an indifferent streptococcus (Rockefeller number 344)[12] was not demonstrated in the serums of any of the 6 patients with pneumonia.

Cultures of the throat, sputums and throat washings yielded no indication of a direct etiologic relationship between any single organism or group of organisms and atypical pneumonia.

12. Thomas, L.; Mirick, G. S.; Curnen, E. C.; Ziegler, J. E., Jr., and Horsfall, F. L., Jr.: Serological Reactions with an Indifferent Streptococcus in Primary Atypical Pneumonia, Science **98**: 566-568 (Dec. 24) 1943.

Two case reports are included to illustrate the clinical features of atypical pneumonia observed in individuals inoculated with filtered and with untreated material:

Case 146, Group B (figs. 1, 2, 3 and 7).—A white man aged 26 received an inoculum of filtered throat washings and sputum. Twelve days later the patient developed hoarseness and persistent cough productive of scanty amounts of sputum. The following day malaise, sneezing, nasal obstruction and discharge and substernal pain were noted. These symptoms increased in intensity. Between the fourteenth and eighteenth days a moderate febrile illness ensued, the temperature reaching a maximum of 102.8 F. Feverishness, headache, malaise, anorexia and weakness were the most prominent constitutional symptoms present during this period. The cough became more severe and was productive of large amounts of mucopurulent sputum. A roentgenogram of the lungs on the seventeenth day showed bilateral pneumonic infiltration of the right hilus and left lower lobe. Subcrepitant inspiratory rales and rhonchi were first audible over the areas of infiltration on the nineteenth day and persisted until the thirty-first day after inoculation. Convalescence was uneventful, but minimal cough was still present on discharge.

No significant alteration of the white blood cell count or of the erythrocyte sedimentation rate occurred during the illness. Pneumococci types 6 and 21 were isolated from the patient's sputum; type 6 was repeatedly isolated from throat cultures prior to inoculation. Cold agglutinins in a titer of 1,024 were detected in a sample of the patient's serum on the twentieth day after inoculation.

Case 137, Group C (figs. 4, 5, 6 and 8).—A man aged 20 was inoculated with untreated throat washings and sputum. Prodromal symptoms of illness began five days after inoculation with the development of sore throat. During the next forty-eight hours the patient noted dry cough, substernal pain and fever. Other symptoms of illness became apparent on the eighth day with the occurrence of chilliness, feverishness, headache, malaise and anorexia. The temperature rose to 102 F. and physical examination disclosed coarse rales at the right lung base. A roentgenogram of the chest (posteroanterior view only) was negative. On the ninth day frontal headache and cough became severe and the temperature rose to 104.4 F. Fine subcrepitant rales and rhonchi were detected over the right lung base. The diagnosis of atypical pneumonia was confirmed by a roentgenogram which showed minimal infiltration (right oblique view). The clinical course was subsequently severe and marked by cyanosis, tachypnea, tachycardia and cough. Oxygen therapy was given with benefit for eight days. The pneumonic infiltration spread to include all five lobes. On the fifteenth day clinical signs of improvement were apparent for the first time, and thereafter convalescence proceeded uneventfully.

Laboratory studies revealed no elevation of the leukocyte counts. There was a rise in the erythrocyte sedimentation rate to 0.7 mm. per minute on the twenty-first day after inoculation, thirteen days after onset. Cold agglutinins were demonstrated in a titer of 8,192 in a sample of serum taken on the twenty-sixth day after inoculation.

In addition to the 6 cases of atypical pneumonia there were 11 cases of minor respiratory illness (as shown in the table) distributed as follows: group A (autoclaved)

1 case, group B (filtered) 5 cases, group C (untreated) 5 cases. The illness in group A was the only instance of respiratory infection occurring in any member of the autoclaved group. He was the only volunteer, as far as could be determined, who broke isolation; on at least one occasion he descended a fire escape to converse with a member of another group who subsequently developed "suspected atypical pneumonia."

The development of these minor respiratory illnesses in 10 persons receiving filtered and untreated inoculum occurred between the first and fifteenth days of inoculation. The symptoms, physical signs, course and severity of these infections were variable. Seven illnesses were afebrile and extremely mild, with minimal symptoms and signs. Three illnesses were more severe, characterized by fever, moderate symptoms and physical signs of respiratory disease. These cases were diagnosed as "suspected atypical pneumonia" or "bronchitis resembling atypical pneumonia" because the clinical course of illness was that of atypical pneumonia, although without roentgenographic evidence of pulmonary infiltration. A complete discussion of these cases of minor respiratory illness will be made in the final report of these experiments.

Characteristics of Illness Noted in Human Volunteers Inoculated with Autoclaved, Filtered and Untreated Sputums and Throat Washings from Patients with Atypical Pneumonia

Group	Type of Inoculum	No. of Men	Result: Primary Atypical Pneumonia	Result: Minor Respiratory Illness	Result: No Illness
A	Autoclaved	18	0	1	17
B	Filtered	12	3	5	4
C	Untreated	12	3	5	4
Total		42	6	11	25

SUMMARY AND CONCLUSIONS

Human volunteers have been inoculated with a pool of sputum and throat washings obtained from experimentally produced cases of atypical pneumonia. Respiratory illnesses having all of the characteristic features of primary atypical pneumonia developed in 3 of 12 men receiving filtered inoculum. Similarly, 3 instances of pneumonia occurred among 12 individuals inoculated with untreated material from the same source. The infection was thus carried through two successive groups of well persons. No cases of pneumonia developed in any of the 18 men who received autoclaved inoculum.

The incubation period in the experimental disease differed with the type of inoculum. Persons receiving filtered material developed symptoms of disease between twelve and fourteen days after inoculation. The onset of illness in those inoculated with untreated material was approximately one week earlier.

The results of this experiment thus demonstrate that bacteria-free filtrates, presumably containing a virus, can induce primary atypical pneumonia in man.

Blood Transfusion in the Middle Ages.—In the Middle Ages, blood transfusion was considered a therapeutic measure to restore health. It is related that Pope Innocent VIII, in the year 1490, lay dying from that "terrible disease extreme old age," and as a last resort a transfusion from three donors was attempted in 1491, which resulted in the death of the donors without saving the Pope. Needless to say, the daring physician had to flee for his life.—Gordon, Benjamin Lee: The Romance of Medicine, Philadelphia, F. A. Davis Company, 1944.

INJURIES OF THE CERVICAL SPINE

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ERIE, PA.

Starting with the fact that the great majority of injuries of the cervical spine are in the nature of a "whip lash," and accepting the meaning of the term "whip-lash" as a hyperflexion followed by spontaneous extensor recoil, the nature of a great variety of injuries of this section of the spinal column becomes understandable. The extreme mobility of the cervical spine, its known potential for pure dislocation unaccompanied by fracture and its wide anatomic departure from other sections of the spinal column seem to have made specific diagnosis of lesions in this section difficult. A number of important accretions of anatomic interpretation, diagnostic technic and therapy have occurred quite recently. Correlation of these new facts has served to clarify both the diagnosis and the treatment as well as to improve the prognosis.

TYPES OF INJURIES

Two degrees of injury are immediately separated by the severity of the accident. For convenience these will be referred to as "obvious" and "obscure." The common automobile street accident, falls from a height, diving accidents and blows striking the head sufficient to cause immediate disability and emergency rescue produce the usual obvious case. When paralytic signs or gross lesions immediately "obvious" in the x-ray film or both are present, the diagnostic problem is a simple one.

The "obscure" lesions are those confronting the physician, with pain and spasm in the neck, variable pain radiation with gradations from those of trivial annoyance to those exhibiting intractable causalgia. The question of injury, whether recent or remote, is frequently slurred over by the patient for the reason that painful symptoms do not develop until some time after, a good many times years after, the injury occurs. Special questioning on this point usually brings out the history of a definite injury days, months or years prior to the onset of disabling symptoms. The patient interprets the original fleeting symptoms as a "sprain" not worthy of medical attention. As is true in the case of the ankle, the knee, the wrist or the shoulder, the word sprain indicates a partial or complete ligamentous avulsion. When such ligamentous avulsions in other parts of the body are neglected the healing process is incomplete, leaving an elongated, weakened structure which with ordinary use continues to stretch. The cervical spine is no exception; in fact, its extreme mobility renders it peculiarly susceptible to such progressive elongations with the secondary involvement of the other components of the intervertebral joint.

FUNCTIONAL AND MORBID ANATOMY

Since the accidental force carries the weight of the head beyond the normal range of motion, knowledge of the normal limits is important. For this purpose a study of normals of different types was made (fig. 1). Nine members of the hospital staff, including both sexes from the teens to the sixth decade, of mixed slender,

Read before the joint meeting of the Section on Orthopedic Surgery and the Section on Radiology at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 16, 1944.

stocky, short and tall types, were studied. Three attitudes were posed, in the sitting position, recording only the lateral projection at 72 inches (fig. 2):

Position 1. Relaxed—the gaze focused on a point level with the eye.

Position 2. "Chin chest" position—head pushed forward to approximate the chin as near to the chest as possible in order to obtain maximum range of neck flexion.

Position 3. The limit of extension.

When the first lateral projection of a cervical spine shows elimination of the normal forward curvature, it must be assumed that some kind of mechanical derangement has taken place, since this is just as abnormal a finding as is bowing in the tibia.

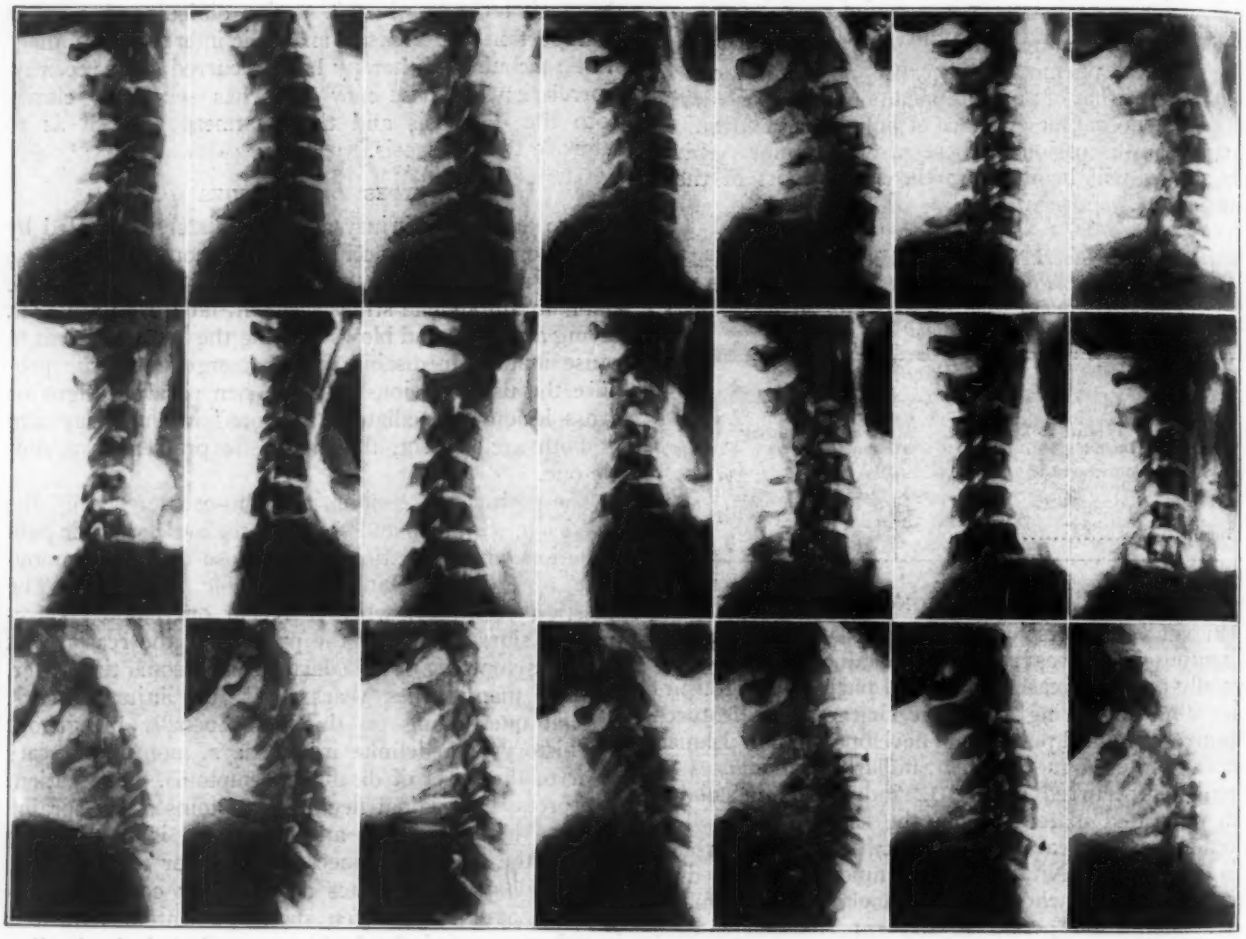


Fig. 1.—Normal standards of neutral, flexion and extension positions. The composite of seven different subjects in the three different positions just mentioned shows how universally the anterior normal curvature of the cervical spine may be expected regardless of sex, age or statural type. The second row shows what may be expected in extreme flexion passively assisted by pressing the head forward on the chest. For the purpose of a composite picture these second row figures were rotated to the vertical. A straight line joining the posterior borders of the bodies of the first and seventh cervical verebrae illustrated in figure 3 shows the amount of curvature. The third row shows how uniform extension is regardless of type.

Figure 3 illustrates the localization possible by taking a lateral view in the "chin chest" position.

A four weeks old injury with complaint of pain and spasm in the neck region with radiation down the arm is shown in figure 4.

As increasing degrees of the hyperflexion force are encountered, not only are the fibers of the capsule of the articular process ruptured but also the posterior common ligament with presumably some fibers of the annulus fibrosus. When this occurs, the pivot of motion is no longer at the juncture of the pedicle and body but shifts forward to the anterior lower border of the dislocating vertebra. This border then impinges on the border of the subjacent vertebra as the articular processes of the dislocating body mount the processes of the subjacent one (fig. 5).

A further continuation of the same extreme hyperflexion mechanism is indicated in figure 9, in which the dislocation is complete and the articular processes are locked.

This paper represents an analysis of 134 cases of injury to the cervical spine encountered during the last twenty-two years and treated either by myself or by my associate, Dr. C. W. Fortune. Of these 73 were of the ambulatory type and the patients came to the office for treatment. The remaining 61 were of the "obvious" emergency type and represent admissions by ambulance to the hospital. Prior to the year 1936 elimination of the normal forward curvature was not noted. Reviewing the films in these cases, it was found that 16 of the 41 showed straightness of the entire cervical spine. Since 1936 11 out of the remaining 32 were noted as showing elimination of the cervical curvature. In 17 of these 27 cases opinions were rendered to insurance carriers or the patients themselves and it is clear that prior to 1936 the opinion was in error for the obvious reason that the significance of straightness of the cervical spine was not appreciated.

"OBSCURE TYPE"

An analysis of the 73 cases in the "obscure" neurologic group shows that the automobile head-on collision is the most prolific cause. The velocity of the car is also the velocity of the individual and his parts. Ordinarily the torso and the legs are braced at the moment of impact of the head-on collision. The extreme mobility of the cervical section of the spine permits the weight of the head to continue its forward momentum after the moment of impact. The degree therefore of hyperflexion "whip lash" is directly proportional to the speed at the moment of collision. Any degree of injury must therefore be anticipated, from slight strain involving the tearing of a few fibers of the posterior articular ligaments, disk injuries and complete dislocations to fatal cases in which the cord is severed. It is the lesser degrees of injury which have eluded specific diagnosis. Immediately following such an accident the elastic extensor recoil mechanism provided by the static posterior cervical musculature and the ligamentum flavum is the mechanism which serves to conceal the damage which has occurred, since it effects a variable degree of reduction spontaneously. Spasm of the cervical musculature serves to avoid painful contact of the injured part; therefore the facets are not restored to their normal apposition. The entire cervical spine is held slightly forward to avoid such painful contact of the posterior articular processes. The elimination of the normal forward curvature thus produced provides the clue to the damage concealed by the spasm. If such cases are seen immediately afterward and the lateral projection shows a straight cervical spine, obviously a picture should be taken in the "chin chest" position. A great many of such cases, however, have but fleeting symptoms which disappear in a few days and the individual resumes the normal use of his head and neck. In exactly the same manner as a neglected ankle sprain, such torn ligaments heal in the long position. Normal use thereafter continues to stretch the ligaments, accounting for the increasing disabling symptoms occurring from three months to years afterward. Such neglected cases result in pain in the cervical region with variable pain radiation.

Analyzing the 73 cases from the point of view of their pain radiation, seven different syndromes become recognizable:

1. The occipital syndrome.
2. The third and fourth cervical root syndrome.
3. The fifth cervical root syndrome.
4. The sixth cervical root syndrome.
5. The seventh cervical root syndrome.
6. The precordial syndrome.
7. The syndrome of the long thoracic nerve.

In referring to the root numbers it will be remembered that the number of the root corresponds with the space above the vertebra of the same number. The occipital syndrome associated with lesions of the axis or atlas is recognized by pain radiating up one or both sides of the occipital region together with limitation in nodding, rotation and tilting of the head or wry neck. The third and fourth cervical root syndrome is associated with muscle spasm and pain along one or the other lateral angles of the neck. In the fifth cervical root syndrome the pain radiates over the shoulder region, in the sixth to the radial side of the hand and in the seventh to the radial side of the hand, including the index and in some cases the middle finger. The syndrome of the long thoracic nerve has been seen twice in this series; both cases showed "winged" scapula, complete paralysis of the serratus anterior and roentgenographic evidence of injury at the seventh cervical level. Horner's syndrome was not observed in any case in this series.

In the case of disk protrusion, the signs are considerably more definite than in the case of pure luxation

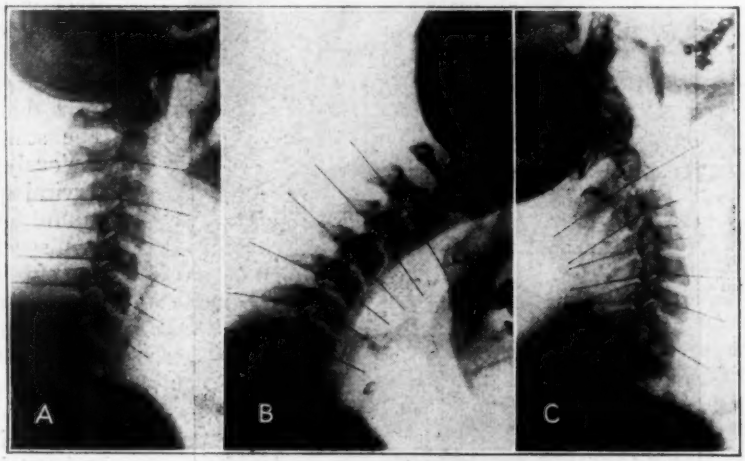


Fig. 2.—Functional anatomy. For this purpose arbitrary points were selected on each vertebra and lines extended to visualize the movement. *A* is in relaxation with the eyes horizontal, position 1. Note that the posterior lines are nearly parallel, evenly spaced and horizontal (in balance). *B* shows the "chin chest" position, and the degree of deviation of the lines is variable. The sixth and seventh remain nearly horizontal. The greatest range is seen between the fourth and the sixth. Note that in *C* the convergence of the posterior lines is maximal between the third and the sixth. In terms of the "whip lash" mechanism, it will be seen that the sixth and seventh form the stock of the whip and the upper vertebrae the lash. The movement indicated by the anterior lines is best explained by the movement involved in the shift of the nucleus pulposus, the approximation of the anterior edges of the vertebrae in *B* being consistent with the convergence of the lines, just as the divergence of the lines in *C* is accompanied by an approximation of the posterior edges of the body.

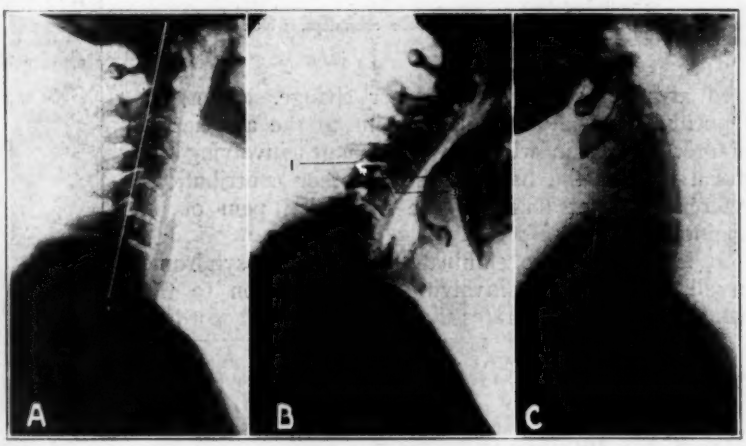


Fig. 3.—Localization of lesion. Four years before, the patient sustained an electrical shock. During the effort to withdraw his hand from contact with wires, a severe "throw" of the head occurred. He experiences occasional pain and stiffness in the neck with shoulder radiation, which he relieves posturally. Note the straightness of the spine in *A*, also forward tilting of the body as measured by the posterior border of the fourth. *B* 1 shows the excursion of the posterior edge of the superjacent articular process from the subjacent one. *B* 2 shows the separation of the posterior edges of the body and the shifting of the nucleus to account for this spread. *B* 3 shows the approximation of the anterior edges, and *C* shows how hyperextension restores all normal relationships.

but shifts forward to the anterior lower border of the

ness of the cervical spine was not appreciated.

without protrusion. In the 2 instances, however, they cover the same areas. Mixter and Barr,[1] McKenzie,[2] Oppenheimer,[3] Semmes and Murphey,[4] Spurling,[5] Stookey[6] and Stuck[7] have all pointed to syndromes associated with disk protrusion showing sharply delineated areas of sensory and motor change. Semmes,[4] Oppenheimer[8] and Nachlas[9] point to the association of precordial pain with sensory changes involving the radial side of the hand, while in other contributions reference is not made to the precordial pain of an anginoid type.

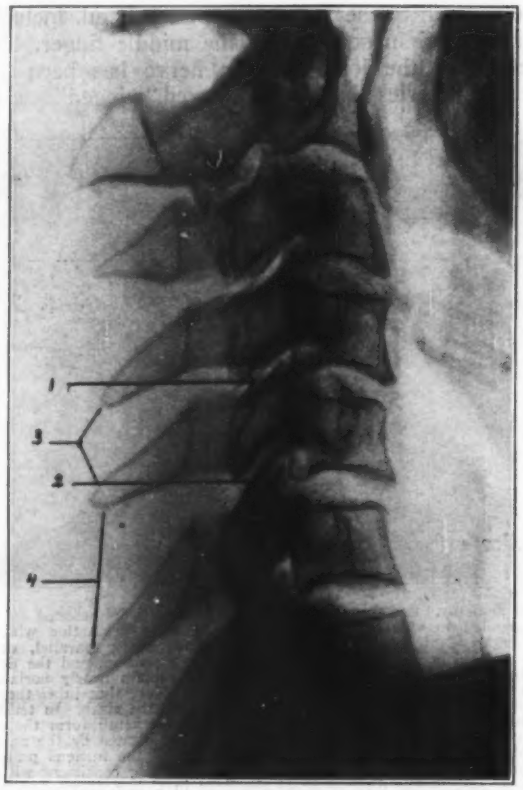


Fig. 4.—One month old luxation injury. The separation of the posterior margins of the articular processes between the fifth and sixth vertebrae is easily demonstrated with flexion (compare 2 with 1). The wide separation as indicated in 4 as compared with 3 confirms this conclusion. The patient complained of pain over both shoulders, which disappeared with the hyperextension collar.

It is important to eliminate the scalenus syndrome in all chronic cases involving pain radiation to the hand. Figure 4 illustrates the areas involved according to the number of the nerve root. Figure 7 shows involvement of the fourth nerve root. Figure 8 illustrates a typical case of sixth root radiation.

DIFFERENTIAL DIAGNOSIS

With the clue to mechanical derangement established by the fact that the cervical spine exhibits a straight line in the lateral projection, differential diagnosis depends on a proper correlation of x-ray appearances with nerve root radiation. Semmes,[4] Spurling[5] and Oppenheimer[8] have noted straightness of the cervical spine in disk lesions. Watson-Jones[10] also makes note of straightness as an incident in "sprain" of the cervical spine. Oppenheimer[8] notes lesions of the articular processes and encroachment on the intervertebral foramens due to spurs surrounding the intervertebral disk. The scalenus syndrome has been mentioned.[11] This obviously is not associated with straightness of the cervical spine. Pure muscle ruptures are not ordinarily painful beyond the first two weeks.

A specific diagnosis, therefore, rests on the correlation of positive x-ray findings corresponding to a definite level of root radiation as described. Spurling[5] has shown that disk protrusions can be visualized with pantopaque. He also finds that compression downward of the head on the side of involvement produces pain in one of the root areas mentioned. Careful roentgenography in the sitting relaxed position with the eyes horizontal and the "chin chest" position and bilateral oblique films to show the intervertebral foramens will frequently reveal a lesion of one or other of three kinds:

1. Luxation of the posterior facets.
2. Narrowing of the intervertebral space.
3. Lesions encroaching on the intervertebral foramen.
4. Combinations of any two or all.

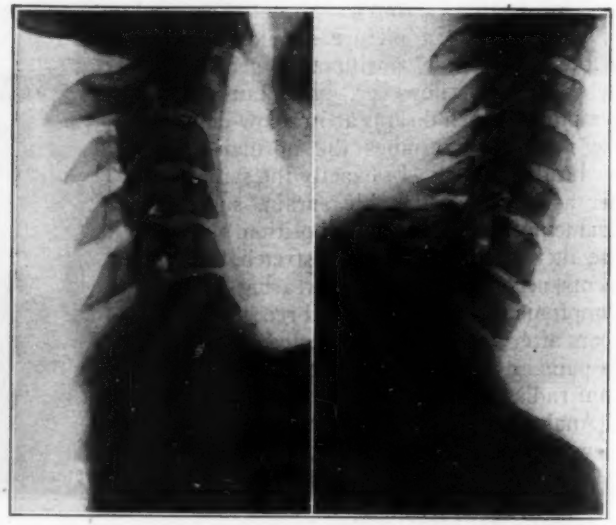


Fig. 5.—Disk lesion associated with fracture. Note the anterior projecting fragment of the seventh cervical as well as the contacting exostoses of the posterior edges of the sixth and seventh cervical, the narrowing of the intervertebral space, also that no change is noted in the posterior articulations. Pain of a causalgia type radiated to the finger tips of the right hand. There was also paralysis of the serratus anterior.

"OBVIOUS" LESIONS

No attempt will be made to outline specifically diagnosis and treatment of the frank outspoken fracture dislocations with or without paralysis for which imme-

1. Mixter, W. J., and Barr, J. S.: Rupture of Intervertebral Disk with Involvement of Spinal Canal, New England J. Med. **211:** 210-215 (Aug. 2) 1934.
2. McKenzie, K. G., and Botterell, E. H.: Common Neurological Syndromes Produced by Pressure from Extrusion of Intervertebral Disc, Canad. M. A. J. **46:** 424-435 (May) 1942.
3. Oppenheimer, A., and Turner, E. L.: Discogenetic Disease of the Cervical Spine with Segmental Neuritis, Am. J. Roentgenol. **37:** 484-493 (April) 1937.
4. Semmes, R. E., and Murphey, F.: Syndrome of Unilateral Rupture of the Sixth Cervical Intervertebral Disk, J. A. M. A. **121:** 1209-1214 (April 10) 1943.
5. Spurling, R. G., and Scoville, W. B.: Lateral Rupture of the Cervical Intervertebral Disks, Surg., Gynec. & Obst. **78:** 350-358 (April) 1944.
6. Stookey, B.: Compression of Spinal Cord and Nerve Roots by Herniation of Nucleus Pulposus in the Cervical Region, Arch. Surg. **40:** 417-432 (March) 1940.
7. Stuck, R. M.: Spinal Cord Compression Injuries, J. Kansas M. Soc. **40:** 48-52 (Feb.) 1939.
8. Oppenheimer, A.: Longitudinal Fissures in the Vertebral Articular Processes, J. Bone & Joint. Surg. **23:** 280-282 (April) 1941; Pathology, Clinical Manifestations and Treatment of Lesions of the Intervertebral Disks, New England J. Med. **230:** 95-105 (Jan. 27) 1944.
9. Nachlas, I. W.: Pseudoangina Pectoris Originating in the Cervical Spine, J. A. M. A. **103:** 323-325 (Aug. 4) 1934.
10. Watson-Jones, R.: Fractures and Other Bone and Joint Injuries, Baltimore, Williams & Wilkins Company, 1939.
11. Brown, L. D., and Kuhns, J. G.: Extension Deformities of the Cervical Spine, J. Bone & Joint Surg. **24:** 329-340 (April) 1942.

diate definitive treatment is indicated except to state rules of procedure in the handling of such cases. Here also recent acquisitions in several departments have resulted in revisions of approach, diagnosis and treatment.

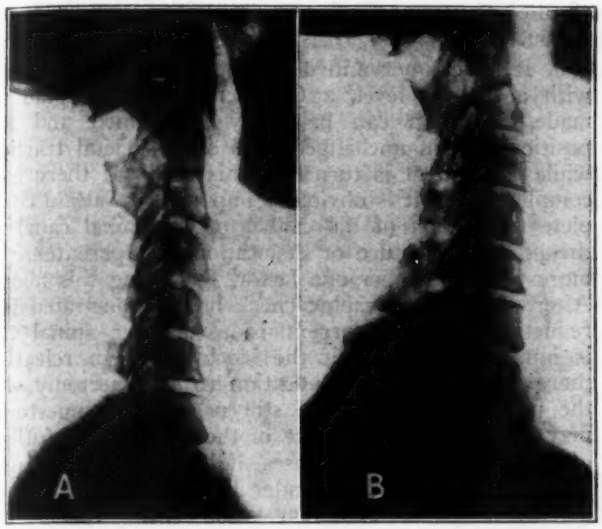


Fig. 6.—A case of typical fourth root radiation. In this case the injury was twenty years old. Note the straightness in *A* and luxation of the third forward on the fourth. The patient was tracted by a bed halter for several days, with complete disappearance of symptoms. *B* shows the fusion of the third, fourth and fifth spinous processes. This patient was completely relieved from painful symptoms and has comfortable motion of the head and neck.

1. Hyperextension is as generally applied in the reduction of fractures of the spinal column as is straight line traction in the reduction of fractures in long bones.

2. The anterior longitudinal ligament when interpreted correctly acts as the main reducing medium as well as the main check strap opposed to excessive hyperextension.

3. Laminectomy as a decompressive procedure occupies a distinctly secondary place to that of hyperextension.

4. Determination of spinal subarachnoid block by the Queckenstedt test is an invaluable test before and after hyperextension and as a criterion for laminectomy.

5. Skeletal traction by means of the Crutchfield tongs is much superior to any other method of traction and when used properly is completely sufficient for the reduction of fractures, dislocations and fracture dislocations.

The following routine is observed in the emergency service:

1. Medical responsibility begins at the site of the accident. The ambulance personnel is instructed to place the head in immediate hyperextension with a blanket roll or other material under the neck, and an attendant remains in charge of the head position throughout all transport directly to the hospital bed, never once allowing the head to be bent forward or lifted as for a drink of water.

2. When the patient has been transferred to the hospital bed a halter is applied to take over the hyperextension. Five pounds of weight is attached through a pulley, and the head of the bed is elevated.

3. Not until the patient is so established in hyperextension with traction is the preliminary x-ray survey permitted. A lateral film is then taken and an anteroposterior film particularly to show the odontoid. An anteroposterior film otherwise is mostly a deception.

4. Meanwhile a neurologic examination is made. If there is no evidence of spinal cord involvement and the preliminary films are negative, the case is further investigated in the roentgenologic department at leisure with bilateral oblique films, the odontoid films being repeated if necessary and films taken in the sitting position, positons 1 and 2, as heretofore mentioned.

Fig. 7.—Outline of areas commonly involved in cervical spine lesions. From Tilney, Frederick, and Riley, H. A.: Form and Functions of the Central Nervous System, ed. 2, figure 174, page 166, the somatic dermatomes (Dejerine), courtesy of Paul B. Hoeber, Inc., New York.

If the lateral projection in position 1 shows elimination of the normal forward curvature and all other evidence is negative, this in and of itself is sufficient to indicate the application of a hyperextension collar, to be worn without interruption for a minimum of three weeks, this period being the time of sound repair of

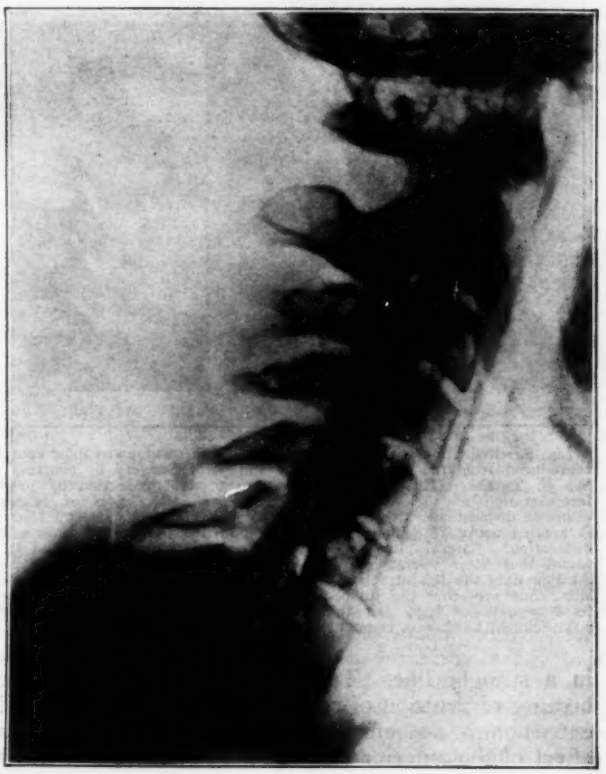


Fig. 8.—Typical sixth nerve root radiation. Note narrowing between fifth and sixth cervical vertebrae, also exostoses of the posterior edges of the body. History is that of violent flexion ten years prior to advent of disabling symptoms. Is relieved by halter traction and by maintaining proper posture.

fibrous tissue. A great many cases of chronic disability involving both intervertebral disks and posterior spinal joints will thus be prevented.

OUTLINE OF DEFINITIVE TREATMENT

When the survey x-ray shows a gross lesion such as a crush fracture, unilateral or bilateral dislocation, fracture dislocation or fracture of the odontoid process:

1. Skeletal traction is almost invariably indicated.

2. If there are neurologic signs, skeletal traction also is indicated.

3. Provision should be made to raise or lower the pulley and weight traction and the amount changed to suit the case. Up to 45 pounds of weight has been used over a considerable period of time. However, 15 to 25 pounds with skeletal traction is ordinarily quite sufficient.

4. In cases of unilateral or bilateral dislocations or fracture dislocations, it is important to start traction

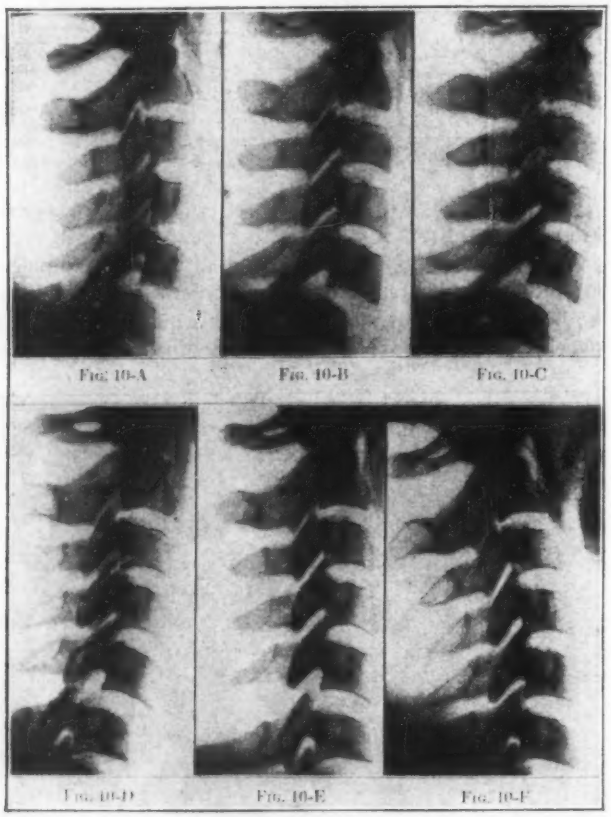


Fig. 10-A Fig. 10-B Fig. 10-C

Fig. 10-D Fig. 10-E Fig. 10-F

Fig. 9.—Reduction with skeletal traction under roentgenographic control, reproduced from the Journal of Bone and Joint Surgery by courtesy of W. G. Turner. This method consists in gradual reduction by proper interpretation of the skeletal traction method. In cases of bilateral complete dislocations with or without subarachnoid block, skeletal traction is applied using 25 pounds pulling in line with the vertebra above the dislocation. Lateral films are taken at ten minute intervals, and it is found that after twenty minutes or more the processes are unlocked. At this time the head traction is lowered in order to induce hyperextension, thus replacing the jumped process. The traction is then reduced to 8 pounds or less. In the case cited the author states that the subarachnoid block was completely relieved. See footnote 13a.

in a straight line. Traction in flexion is dangerous because of avulsion of the posterior roots. Traction in extension is not effective because of the check strap effect of the anterior longitudinal ligament.[12] Straight line traction therefore under x-ray control, as much weight being used as is necessary to disengage the articular processes, is the rule. This procedure has been illustrated by Cone and Turner (fig. 9).[13]

12. Davis, A. G.: Tensile Strength of the Anterior Longitudinal Ligament in Relation to the Treatment of 132 Crush Fractures of the Spine, J. Bone & Joint Surg. **20:** 429-438 (April) 1938.

13. Cone, W., and Turner, W. G.: The Treatment of Fracture Dislocations of the Cervical Vertebrae by Skeletal Traction and Fusion, J. Bone & Joint Surg. **19:** 584-602 (July) 1937.

In the rare case in which dislocations are found irreducible by skeletal traction, one resorts to the Taylor[14] or Walton[15] technic. In spite of several attempts, some dislocations or fracture dislocations remain irreducible. Resort to operative approach such as that outlined by Rogers,[16] is justifiable either for the removal of an obstructing articular process with fusion or simple fusion.

5. If there is nerve involvement or complete paralysis with a definite level, a Queckenstedt test should be made. Traction can be easily maintained and the position remain unchanged with such skeletal traction while the patient is turned on his side. If there is a complete block it is obviously important to attain complete restoration of the caliber of the spinal canal at the point of fracture or dislocation. Hyperextension, more than any other one factor, will bring this about. After a roentgenographic check has demonstrated full reduction or full hyperextension, another spinal tap is immediately done; if the block has been released, there is obviously no indication for laminectomy. If the pressure readings are still negative, laminectomy may be indicated. In spite of the well known futility of laminectomy in such cases, if laminectomy is to be done it should be done under local anesthesia and as quickly as possible. Allen[17] has shown that spinal cord substance has the ability to recover from pressure up to five hours but that if pressure is continued longer the condition is irreversible.

When there is partial paralysis it is important to have repeated neurologic examinations at short intervals to determine progress or not of the lesion. In cases showing progressive paralysis or where the roentgenogram shows definitely the intraspinal projection of a bone fragment such as a fractured lamina, an emergency laminectomy is indicated. Clinical experience has shown that hyperextension is much more effective as a decompressor than is laminectomy. The projection of the posterior upper angle of the vertebral body into the spinal canal is the most frequent compressing medium. This deformation disappears with adequate hyperextension, releasing the block. Several cases showing an initial block have shown a restoration of pressure in the lumbar needle after hyperextension or manipulative reduction. Too often laminectomy proves to be an antemortem exploration and the cord is found pulpified. A number of fatal cases in which complete reduction had been attained by hyperextension in which laminectomy was not done because of its apparent futility have shown pulpified cords on necropsy. Prediction in any

13a. This method seems by far the safest and simplest of the manipulative procedures. It recognizes that pulling in a straight line is without danger because of the check strap effect of the anterior longitudinal ligament. It also recognizes that, once the facets are replaced, strong traction is contraindicated; so the traction is reduced to a negligible amount. It has been my practice that when such pure dislocations are properly reduced a plaster collar should be applied with the neck in hyperextension as soon as possible after the reduction has been accomplished. This is done in order to allow repair of the posterior ligaments in the short position; otherwise progressive luxation or recurrence of the dislocation may be experienced. There are numbers of cases on record in which this type of recurrence has been experienced. It is therefore important after the reduction has occurred not only to remove all traction but to immobilize the cervical spine in complete hyperextension in a rigid irremovable plaster collar for the necessary length of time for healing of the torn ligamentous tissues, which is from three to four weeks.

14. Taylor, A. S.: Fracture Dislocation of the Neck: A Method of Treatment, Arch. Neurol. & Psychiat. **12:** 625-639 (Dec.) 1924; Fracture Dislocation of the Cervical Spine, Ann. Surg. **90:** 321-340 (Sept.) 1929.

15. Walton, G. L.: A New Method of Reducing Dislocations of the Cervical Vertebrae, J. Nerv. & Ment. Dis. **20:** 609-611, 1893; Further Observations on Cervical Dislocations and Its Reduction, Boston M. & S. J. **149:** 445-447, 1903.

16. Rogers, W. A.: Treatment of Fracture Dislocation of the Cervical Spine, J. Bone & Joint Surg. **24:** 245-258 (April) 1942.

17. Allen, A. R.: Surgery of Experimental Lesion of Spinal Cord Equivalent to Crush Injury of Fracture Dislocation of the Spinal Column, J. A. M. A. **57:** 878-880 (Sept. 9) 1911.

case is impossible when the case of complete paralysis is first seen because of the fact that edema, contusion, hemorrhage and compression may temporarily produce complete signs and it is quite impossible to differentiate these entities.

6. Fractures of the first and second cervical vertebrae with the exception of fractures of the odontoid defy classification as to treatment. Fractures in these vertebrae, however, obey the general rule as regards the immediate application of the Crutchfield tongs, although they are frequently an exception to the rule of hyperextension. Experience has taught that the head may have to be lowered or raised, depending on the appearance of the odontoid in the lateral projection. As soon as the odontoid has become stable and the fragments have been correctly apposed, this position should be maintained either by the tongs or by a plaster collar, which may be fitted while the tongs are still in place. It is important to eliminate all motions in rotation, nodding or lateral tilting for several months.

7. Fractures or defects of the accessory processes call for individualized treatment, depending on the part involved. Both Oppenheimer [8] and Mensor [18] call attention to such defects. Clay shovelers' fracture involving the spinous processes at the cervicodorsal junction also claim attention as a separate clinical entity.[19] None of these have been encountered in this series.

CONVALESCENCE

Here a single general rule may be said to cover the entire conduct of convalescence to the point of sound healing. Hyperextension is that rule. Nowhere is it more necessary to maintain complete hyperextension throughout convalescence than in the cervical spine. Whether the patient is recumbent or ambulatory, whether the condition is a unilateral or a bilateral dislocation or a compression fracture, whether a partial luxation or a suspected intervertebral disk lesion, whether the patient must look skyward or not to hold the extension, the rule holds. Removable braces are the least trustworthy, irremovable plaster casts the most dependable. In fashioning such plaster collars or Minerva jackets, the principal criterion is the separation of the jaw from the chest. A number of cases appear in the literature in which redislocations have occurred after complete reduction because of inadequate splintage. Recent ligamentous lesions should be protected for three to six weeks, complete dislocations for three months, compression fractures for three months, odontoid process fractures for three to five months. Where fracture dislocations are found to be irreducible and there are no paralytic signs, posterior fusion of two or three of the vertebrae in the involved region is quite sufficient to produce a fully functioning spine minus symptoms except for slight limitation of mobility.

PROGNOSIS

In the 61 hospital admissions for serious accidents there were eleven deaths. Autopsies, which were obtained in most of the fatal cases, showed irreparable pulpefaction of the cord. In the remainder of the serious injuries full recovery has occurred for the most part. Several patients showing complete signs of paralysis on entering the hospital have recovered complete or nearly complete function without laminectomy. In the 134 cases of all types there were complaints of arm or hand signs in 35. Several cases of wry neck were among the 73 ambulatory admissions.

In view of the rocker movement characteristic of the cervical vertebrae, it is illogical to separate lesions involving luxation of the posterior articulations from those of the disk. Injuries affecting the one inevitably involve the other, since the vertebra moves as a whole. The more severe the degree of luxation, the greater the probability of involvement of the disk. In several such cases there has been complete disappearance of painful symptoms following fusion. Judging from the mechanics of the injury, it would appear that, where a disk protrusion is definitely demonstrated, fusion of the involved area should accompany the disk operation or follow it. Otherwise the ligamentous laxity may continue to cause symptoms and indefinite pain radiation over the area for which the disk operation was done. Prognosis in such cases therefore depends on rules of practice yet to be elaborated in a field which has not yet been adequately exploited and in which much progress is at present being made.

CONCLUSIONS

1. Elimination of the normal forward convexity of the cervical spine indicates mechanical derangement of the posterior intervertebral joints.

2. Specific diagnoses are possible in many hitherto obscure cervical injuries when properly executed roentgenography and neurologic findings are correlated.

3. Present day roentgenologic, neurologic and orthopedic technic when combined permit a more favorable prognosis in all types of injuries except those with complete neurologic signs.

4. Further investigation and end result studies are necessary to differentiate fully the luxation type from the disk protrusion type of cervical injury and for the proper remedy for the combined lesion.

716 Sassafras Street.

18. Mensor, M. C.: Injuries to the Accessory Processes of the Spinal Vertebrae, J. Bone & Joint Surg. **19**: 381-388 (April) 1937.
19. Hall, R. D. M.: Clay Shovelers' Fracture, J. Bone & Joint Surg. **22**: 63-75 (Jan.) 1940.

ABSTRACT OF DISCUSSION

DR. JOHN DUNLOP, Pasadena, Calif.: A few years ago I visited Dr. Darrach's clinic, and Dr. Barbara Stimson tried to demonstrate to me what she was terming "unilateral dislocations" and which I had been calling "unilateral dislocations" for a great many years. In manipulating those cases, in some instances we were able to get definite proof that something happened with the reduction, and immediately the patient was relieved after recovering from the anesthesia. On the other hand there have been a great many cases in that group with manipulation in which nothing seemed to happen, and the patient was partially relieved but went around with a sore neck for a good many weeks afterward. I am wondering if Dr. Davis will tell us whether or not he believes that that group of cases is probably the sprained neck of which he speaks. A good many years ago I began to see ruptures of the spinous processes from about the seventh cervical down to the second dorsal, where the ligamentum nuchae had apparently pulled away the spinous processes. When I started to do that work it was almost impossible from an x-ray point of view to get pictures which would demonstrate these fractures. I should like Dr. Davis to go into more detail concerning the dislocations and the anterior dislocations which are not demonstrated in the facets.

DR. RALPH K. GHORMLEY, Rochester, Minn.: I am not sure how important these lesions are in the acute stage, but it certainly is true in my experience that many of the patients come to physicians later on —perhaps three, four or five years later—

with painful necks in which there is evidence of some trauma. If the trauma had been recognized at the time of occurrence, the condition might have been alleviated and subsequent disability prevented. One question I want to ask Dr. Davis is whether or not he believes in manipulation of dislocations of the cervical portion of the spinal column under anesthesia or whether he prefers traction methods.

Dr. Frank R. Ober, Boston: In an anteroposterior x-ray view of the cervical spine one may derive a good deal of help by drawing transverse lines across the centers of the vertebrae which extend for 2 or 3 inches beyond the center. If these lines are not parallel, one may conclude that some damage has been done to the cervical spine. All lateral x-rays of the cervical spine should be taken with the patient sitting as Dr. Davis recommends, head erect, head flexed and head extended. A study of these three views will give one a good idea of any disturbances of the physiologic curve in the cervical region. Furthermore, the sitting position allows the shoulders to drop so that one will get a view of the first dorsal as well as all the cervical spines. I do not believe it is always possible to correlate the x-ray appearance with neurologic symptoms of the peripheral nerves. For instance, writers' cramp can be due to spasm of the scalenus anticus group of muscles as well as from narrowing of the intervertebral foramens. The pain from cervical spine lesions is not always located in the arm and hand. Pain under the shoulder blade may be a characteristic symptom. One must remember, however, that one can get spasm of the scalenus anticus muscles in arthritis of the cervical spine as well as in cases of congenital shortening of that muscle or in the presence of cervical ribs.

Dr. A. G. Davis, Erie, Pa.: Dr. Dunlop used the term "sprain." This paper attempts a more specific diagnosis than the word "sprain" implies. A sprain is either a torn muscle, fascia, ligament or joint capsule. Roentgenologists argue that spasm in the cervical region should produce more hyperextension than normal because the great mass of musculature is on the posterior aspect of the cervical spine. My contention is that the person is leaning away from the point of greatest tenderness, and the point of greatest tenderness is the particular posterior facet where the capsule is torn. The first structure to part must be the capsule surrounding the involved pair of facets. The next structure involved is the posterior longitudinal ligament. A large number of the indeterminate so-called "sprains" that we treated with physical therapy, "hanfleg" stretching and so on seem amenable to more rational treatment. If we analyze cervical injuries on the basis of the "whip lash" mechanism, regardless of the nature of the accident, and realize that the momentum of the head continues on after the moment of impact or throw and that the extreme excursion is immediately followed by a recoil induced by the powerful posterior muscles, the element of deception so introduced makes less of the injury than it actually is. The question of involvement of the ligamentum nuchae is eliminated by the absence of hematoma, ecchymosis and swelling, these signs being absent. The answer to Dr. Ghormley's question is that, whether the reduction is gradual or by manipulation, general anesthesia is never used because of the hazard. May I draw your attention to the difference in approach of roentgenologists and orthopedists. To a roentgenologist "seeing" is "believing," and he is careful to commit himself no further than visual evidence indicates. The orthopedist must make allowance for the unseen. The fact of negative evidence in the lateral and anteroposterior projections does not disprove the presence of a luxation. The dense structure of one accessory process conceals lesions of another. Oblique and special positional radiography to some extent overcomes this concealment factor. Dr. Ober aptly mentions the scalenus syndrome. This entity must always be eliminated, especially in cases exhibiting pain radiation to the fingers and thumb. The scalenus syndrome, however, is not associated with a straight cervical spine, nor would one expect other evidence of pathologic change in the cervical spine. This seems a significant point of differentiation.

Clinical Notes, Suggestions and New Instruments

BICUSPID AORTIC VALVE WITH RUPTURE OF CUSP

Major William H. Flythe and Captain James C. Wren
Medical Corps, Army of the United States

A white soldier aged 29 was admitted to the hospital complaining of excruciating substernal pain radiating to both arms. He had been well until approximately one hour before admission to the ward, when, while walking at a normal gait, he was suddenly seized with a viselike pain centered at the top of the sternum radiating down the sternum and into both arms. He experienced severe vertigo and almost collapsed. He was immediately nauseated and vomited several times. Moderate dyspnea and diaphoresis were present. In spite of these symptoms he was able to walk to the admitting office of the hospital, not more than 100 yards away, where he was seen by the officer of the day and admitted to the medical service.

The past history revealed nothing of significance. It should be noted that the patient had been an active athlete, having

Ventricular surface of aortic cusp with longitudinal tear.

pitched soft ball professionally and semiprofessionally during the past fifteen years. He was admitted to the hospital on two occasions in February 1943 for an upper respiratory infection, and on both occasions his cardiovascular system was described as normal on physical examination.

The family history was entirely negative.

On physical examination the temperature was 97 F., pulse rate 78 per minute and respiratory rate 22 per minute. The patient was obviously in acute distress. An ashen pallor was present and the extremities were cold and clammy. The pulse was Corrigan in type and the systolic blood pressure was 108 and the diastolic 44. The heart was not enlarged to percussion. On auscultation a loud harsh systolic murmur was heard over the entire precordium, being loudest over the upper end of the sternum. A long blowing diastolic murmur, loudest at the left third intercostal space, also was present. The lungs were clear, the liver was not enlarged and no peripheral edema was present.

Laboratory studies revealed a red blood cell count of 4,600,000, white blood cell count of 10,000 and a hemoglobin of 85 per cent. The Kahn reaction was negative. A sedimentation rate revealed a fall of 5 mm. in one hour. Urinalysis showed no abnormal findings other than a moderate number of granular casts. Blood culture showed no growth after forty-eight hours. A nonprotein nitrogen determination forty-eight hours after

admission was reported as 60 mg. per hundred cubic centimeters. A portable x-ray examination of the chest on the third hospital day showed apparent enlargement of the heart to the left. The aorta was widened in the ascending portion and in the arch. The lung fields were completely cloudy throughout with the exception of the extreme apexes, the appearance being typical of pronounced pulmonary edema.

A clinical diagnosis of ruptured aortic cusp was made on admission, the diagnosis being based on the sudden onset of severe substernal pain together with physical signs of a definite aortic insufficiency which had not been present on previous physical examinations in this hospital.

During the subsequent course of his illness large doses of morphine were required to control substernal distress, especially during the first twenty-four hours. The patient was put into an oxygen tent. Within eighteen hours after admission there was evidence of beginning congestive heart failure, i. e. increasing cough with blood tinged sputum, increasing dyspnea and cyanosis, steadily increasing pulse rate, and rales at both lung bases. By the second hospital day there was evidence of cardiac enlargement by physical examination and considerable increase in moisture in the lungs. Congestive heart failure progressed rapidly despite all the usual measures, including rapid digitalization, and the patient died sixty-two hours after admission.

The autopsy, which was performed by Capt. Joseph I. Mossberger, revealed much congestion throughout the lungs save at the apexes, where there was moderate congestion. Dissection of the pulmonary vessels revealed no evidence of embolism or thrombosis. The heart weighed 400 Gm. The coronary arteries were normal in size and showed no evidence of occlusion. Dissection of the coronary arteries showed numerous small atheromas in the walls. The pulmonic valves appeared normal. The cusps of the mitral valves were normal in length but were spotted with numerous small atheromas. The tricuspid valves appeared shortened. The aortic ring was apparently dilated and presented only two aortic cusps. The right cusp was decidedly enlarged, measuring 5 cm. between its upper attachments to the aorta. It had no nodulus and presented a longitudinal tear of the lamina of the ventricular surface. This tear exposed the raw surface of the lamina of the aortic surface for an area 2 cm. in length and 8 mm. in width. The tear is demonstrated in the accompanying illustrations. The valve was thickened, contained numerous cholesterol spaces and in one area showed slight calcification. The aorta presented a few atheromatous lesions in its wall just above the aortic cusps. The heart and microscopic sections were reviewed by Capt. Joseph H. Eisner. The pathologic diagnoses were as follows:

1. Bicuspid aortic valve.
2. Rupture of aortic cusp.
3. Atherosclerosis of the aorta with subintimal hemorrhage and recent thrombus formation.
4. Atherosclerosis of the aortic cusps.
5. Atheromatosis of the mitral valve and coronary arteries.
6. Subepicardial punctate hemorrhages and ecchymosis.

COMMENT

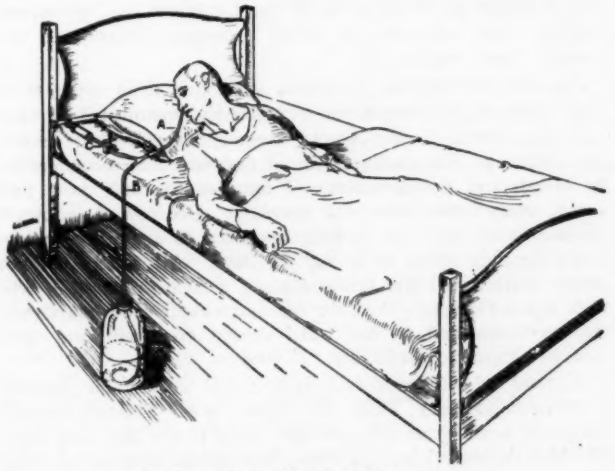
Pathologically the cause of the rupture was unusual. No evidence of syphilitic aortitis or of bacterial implant on the aortic valve was found, the rupture apparently occurring at the site of an atheromatous plaque. An interesting feature of the case clinically was the severity of the substernal pain, which during the first thirty-six hours was quite severe and was not entirely alleviated by frequent doses of morphine. The pain was characteristic of that produced by myocardial anoxemia. Although angina pectoris is not uncommon in the presence of aortic insufficiency, pain of this severity is not usually encountered even where the diastolic pressure is much lower. It seemed to us that the most likely explanation for the severity of the pain was the sudden increase in demand on the heart muscle produced by the rupture of the aortic cusp and the consequent aortic insufficiency, together with a decrease in coronary circulation following a lowered diastolic pressure.

A SIMPLIFIED SUCTION UNIT FOR INTESTINAL DECOMPRESSION

D. J. LEITHAUSER, M.D., DETROIT

The Wangensteen method for suctional drainage of the gastrointestinal tract is now widely used in the management of surgical patients. At first it was used for relief of intestinal obstruction, and more recently it has been employed to combat abdominal distention of all types, particularly after operation. In some instances it is used preoperatively as a prophylactic measure, particularly in cases in which distention may be anticipated.

The value of the procedure of gastrointestinal decompression is firmly established, but the Wangensteen apparatus presents certain difficulties that make the procedure burdensome, especially to the nursing staff. The equipment is cumbersome to handle, and its function is frequently interrupted by faulty connections, collapsed or kinked tubing and at times too much suction. Errors in setting it up may even cause reversal of flow, filling the gastrointestinal tract with water. I have found it particularly difficult to maintain suction with these units in patients subjected to early rising after operation, because of the necessity of disconnecting the apparatus frequently.



Suction unit for intestinal decompression.

To eliminate these difficulties, a simple siphon suction unit has been substituted; this functions equally well and avoids all the difficulties presented by cumbersome equipment and multiple connections. Since intra-abdominal pressure is always greater than atmospheric pressure, and since this is increased in proportion to the degree of distention or rigidity, actual suction is unnecessary. The simple T tube arrangement makes use of siphonage plus the elevated intra-abdominal pressure and functions as well as positive suction.

DESCRIPTION

A glass T tube connects the Levin or Miller-Abbott tube (*A*) to a rubber tube of a larger lumen (*B*), whose opposite end is immersed in a bottle below water level. The bottle is placed on the floor beside the bed. A short rubber tube is attached to the vertical arm of the T tube. The patency of the Levin or Miller-Abbott tube is determined by applying a clamp on *B* and then injecting and aspirating water with a large syringe through *C*. The clamp on *B* is then released and water is injected into the bottle on the floor, to prime the unit. A clamp then is placed on *C*, and the unit is ready to function. Gas passing through the tubing frequently breaks the siphon suction, but this is compensated by increased intra-abdominal pressure, which automatically reestablishes suction. Occasional flushing of the tubing to eliminate mucous plugs and priming are the only attentions needed to keep the apparatus functioning. Elimination of the aspirating bottle or bottles and substitution of the T tube connection does away with multiple connections

and stopper through which leaks may occur. If the lumen of the glass T tube is the same as that of the rubber tubing, leaks in the system are avoided and equal pressure is maintained throughout.

This simple unit has been used to provide decompression of the gastrointestinal tract in surgical cases for over a year. By the time it had been used six months other surgeons at St. Joseph Mercy Hospital had also adopted it, so that at present the older type of apparatus is seldom used. The nurses are enthusiastic about the simpler unit, because it is so much easier to regulate and keep functioning satisfactorily, and much more easy to set up and to handle.

14727 Jefferson Avenue, East.

ERGOTAMINE TARTRATE IN THE TREATMENT OF WAR NEUROSES

LIEUTENANT COLONEL ROY R. GRINKER
AND
MAJOR RUSSELL J. SPIVEY
ARMY AIR FORCES, MEDICAL CORPS, ARMY OF THE UNITED STATES

Since ergotamine tartrate has been recommended as a useful drug in the treatment of "battle reaction," [1] it was thought that it might prove valuable in the treatment of "operational fatigue" (war neuroses) in flying personnel returned to this country from combat.

Patients selected for treatment with this drug were those with evidence of sympathetic overactivity, manifested particularly by increased restlessness, tremor, sleeplessness, tension and agitation. The dosage given at first was that recommended by Heath and Powdermaker: 3 mg. for the first dose, then 2 mg. every three hours for ten days. Because of untoward symptoms this dose was quickly modified to 2 mg. every four hours for four doses daily for ten days. All patients in this report were given the latter dosage, except the first 3, who were given the larger dose for the first twenty-four hours only. All were confined to the ward during treatment and were carefully examined each day.

A total of 16 patients received the ergotamine tartrate (Gynergen, Sandoz); 1 mg. tablets were used. Thirteen of these developed toxic symptoms, notably pains in the legs and arms. Phlebitis developed in 3 patients; in 2 actual thrombi occurred. No improvement of the symptoms of sympathetic overactivity was observed in 10 patients. Only 2 showed improvement in their tremors while taking the drug but reverted to their previous status when it was discontinued. There were 2 others who showed improvement in both sleep and tremor, but 1 of these successes was due to abstinence from alcohol while under treatment. One stutterer showed improvement in his speech. Another slept better while under treatment but did not show any change in restlessness or tremor. None of the benefited patients maintained improvement after the drug was discontinued.

Two additional groups were given the same dosage of ergotamine tartrate. One group of 11 patients suffering with "operational fatigue" were selected at random. They were scattered about the hospital in the various wards and were not housed together. Eight of the 11 developed pain and soreness in the inner aspects of the upper third of their thighs after receiving an average total of 13.7 mg. of the drug. Of the 3 who developed no symptoms, 2 showed no change in blood pressure and 1 showed a lowered blood pressure. Of the 8 who developed symptoms, 2 manifested no significant blood pressure change and 6 showed a lowering of blood pressure.

Eleven normal healthy male adults were given the same dosage simultaneously with the patients. Eight of the 11 developed the typical pain and soreness in their thighs after an average total dose of 12 mg. Of the 3 who had no untoward effect, 2 showed no significant blood pressure change and 1 showed an elevation. Of the 8 developing symptoms, 1 showed a slight elevation, 3 no change and 4 a lower blood pressure.

Experience with the first group of 16 patients led to the interpretation of the pain and soreness of the thighs as an untoward effect of the drug and as a precursor to potential vascular change. Since 3 of the original group of patients had developed a phlebitis following the complaint of pain and soreness, it was decided to stop medication on both of the later groups at the end of the third day, when each had received a total of 24 mg.

Ergotamine tartrate was originally used because of the properties as an orthosympathetic inhibitor by Heath and Powdermaker, who reported success in 20 cases. Goodman and Gilman [2] state that the autonomic blocking effect of ergotamine in man is slight and irregular. It however damages the vascular endothelium, producing vascular stasis, thrombosis and gangrene.

According to these statements there should be little reason to consider ergotamine tartrate valuable in the treatment of sympathetic overexcitation, and toxic effects could be anticipated. Moreover, rational therapy of war neuroses should be directed not against the symptoms but toward the basic causes. This is as axiomatic in psychiatry as in other fields of medicine. It is for this reason that "uncovering technics" are employed successfully.[3]

CONCLUSIONS

1. Ergotamine tartrate in tablet form, given 2 mg. four times daily to an average total dosage beyond 12 to 14 mg., produces symptoms which are interpreted as evidence of toxicity.
2. Improvement was infrequent and not sustained.
3. In our hands ergotamine tartrate is not useful in the treatment of "operational fatigue" as seen in this hospital.

From the AAF Convalescent Hospital (Don-Ce-Sar Place), St. Petersburg, Fla.

1. Heath, R. G., and Powdermaker, Florence: The Use of Ergotamine Tartrate as a Remedy for "Battle Reaction," J. A. M. A. **125**: 111-113 (May 13) 1944.

2. Goodman, L., and Gilman, A.: The Pharmacological Basis of Therapeutics, New York, Macmillan Company, 1941.

3. Grinker, R. R., and Spiegel, J. P.: War Neuroses in North Africa, The Tunisian Campaign (January-May 1943), New York, Josiah Macy Jr. Foundation, September 1943.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following reports. HOWARD A. CARTER, *Secretary.*

ZENITH RADIONIC HEARING AID, MODEL B-3-A, ACCEPTABLE

Manufacturer: Zenith Radio Corporation, Chicago 39.

This is a vacuum tube instrument of three tubes consisting of a transmitter, a magnetic bone conduction receiver and a battery unit. Weights and overall dimensions of the various parts are as follows: transmitter, 5¼ by 2¾ by 1 inch; weight, 5 ounces; receiver, magnetic bone conduction, standard size. Batteries weigh 13 ounces. Total weight of the entire instrument is 20 ounces.

Batteries.—Voltages and current drains are as follows:

A battery, 1.5 volts. Current drain at full volume, 90 milliamperes.

B battery, 45 volts. Current drain at full volume, 1.2 milliamperes.

Acoustic Gain.—The Council tests were made on an observer with impaired hearing. There is no standard method for testing bone conduction.

Overall gain for speech, 35 decibels. The test was made in a free tone field at a distance of 5 feet from the loud speaker. The range of frequency response was tested with an electrical mastoid device measured by response on a cathode ray oscillograph. The frequency response included 4,000 cycles. However, there was considerable distortion in the wave at all frequencies, but this apparently did not influence speech intelligibility.

Physical and Mechanical Features.—The instrument differs in no way either in appearance, dimensions or weight from Zenith Model HA originally submitted to and accepted by the Council.

Performance.—This bone conduction instrument performs in a satisfactory manner and could certainly be used when such a combination is indicated. The construction and caliber of constituent parts all measure up to Council standards.

Recommendation.—The Council on Physical Medicine voted to include the Zenith Radionic Hearing Aid, Model B-3-A, in its list of accepted devices.

ZENITH RADIONIC HEARING AID (MODEL A-3-A WITH AIR CONDUCTION RECEIVER) ACCEPTABLE

Manufacturer: Zenith Radio Corporation, Chicago 39.

This is a vacuum tube instrument of three tubes consisting of a transmitter, a magnetic air conduction receiver and a battery unit. Weights and overall dimensions of the various parts are as follows:

Model A-3-A with magnetic AC receiver: transmitter, 5¼ by 2¾ by 1 inch; weight, 5 ounces; receiver, ⅞ inch in diameter. Batteries weigh 13 ounces. Total weight of the entire instrument is 20 ounces.

Batteries.—Voltages and current drains are as follows:

A battery, 1.5 volts. Current drain at full volume, 90 milliamperes.

B battery, 45 volts. Current drain at full volume, 1.2 milliamperes.

Acoustic Gain.—The Council tests were made by trained observers using fitted ear molds in a tone field (sound proof room) seated 5 feet from the loud speaker delivering frequencies of pure sine wave characteristics. Tests for speech were made on an observer with impaired hearing.

Volume Control Set at	Tone Control at Position	Frequency 256	512	1,024	1,448	2,048	2,896	4,096
½	1	10	14	13	13	21	6	3
½	4	9	10	10	13	17	6	3
Full	1	14	24	28	30	25	15	10
Full	4	21	29	20	23	25	15	7

Overall gain for speech, 39 decibels.

Physical and Mechanical Features.—The instrument differs in no way either in appearance, dimensions or weight from Zenith Model HA originally submitted to and accepted by the Council with one exception: it has a new type neutral colored cord and air conduction receiver. Cord noise is much reduced, and the inconspicuousness of the receiver is an advantage. The earpieces are similar to those supplied with the original instrument. In some cases it has been found that they do not give an adequate fit, under which conditions a molded earpiece is more satisfactory. The air conduction receiver for this unit is a bit different in characteristics from that used with the A-2-A. The phone is marked on the back with a letter B.

Zenith Radionic Hearing Aid.

Performance.—The acoustic gain of this unit is somewhat greater than Model A-2-A. However, at maximum intensity there is a certain amount of overload and case noise. It is the opinion of the Council that it would be impossible to use the soft rubber tip earpiece supplied with this instrument if high intensities were required. Again the tone control, as in the other model, fails to give a sharp frequency shift but gives rather a reduction of intensity. With tone control in number 1 position one gets the overall frequency response of the instrument. In number 2 position the low frequencies are attenuated. In number 3 position both highs and lows are attenuated. The number 4 steps up the lows.

Recommendation.—The construction and quality of parts are satisfactory. This together with the actual acoustic gain for both tones and speech qualifies the aid for acceptance by the Council. The Council on Physical Medicine voted to include the Zenith Radionic Hearing Aid, Model A-3-A, with air conduction receiver in its list of accepted devices.

ZENITH RADIONIC HEARING AID, MODEL A-2-A, ACCEPTABLE

Manufacturer: Zenith Radio Corporation, Chicago 39.

This is a vacuum tube instrument of two tubes consisting of a transmitter, a magnetic receiver and a battery unit. Weights and overall dimensions of the various parts are as follows: transmitter, 5¼ by 2¾ by 1 inch; weight, 5 ounces; receiver, ⅞ inch in diameter. Batteries weigh 13 ounces. Total weight of the entire instrument is 20 ounces.

Batteries.—Voltages and current drains are as follows:

A battery, 1.5 volts. Current drain at full volume, 90 milliamperes.

B battery, 45 volts. Current drain at full volume, 0.60 milliamperes.

Acoustic Gain.—The Council tests were made by trained observers using fitted ear molds in a tone field (sound proof room) seated 5 feet from the loud speaker delivering frequencies of pure sine wave characteristics. Tests for speech were made on an observer with impaired hearing.

Volume Control Set at	Tone Control at Position	Frequency 256	512	1,024	1,448	2,048	2,896	4,096
½	1	9	12	12	15	14	15	10
½	4	10	10	10	10	10	12	7
Full	1	19	20	20	27	27	18	10
Full	4	23	26	15	25	25	16	10

Overall gain for speech, 35 decibels.

Physical and Mechanical Features.—The instrument differs in no way either in appearance, dimensions or weight from Zenith Model HA originally submitted to the Council except that it has a new type neutral colored cord and air conduction receiver. This is an improved feature. Cord noise is much reduced, and the inconspicuousness of the receiver is an advantage. The change in type of vacuum tube which the maker reports does not change the performance of the instrument to an appreciable extent. The earpieces supplied are similar to those supplied with the original instrument. In some cases it has been found that they do not give an adequate fit, under which conditions a molded earpiece is more satisfactory.

Performance.—The acoustic gain for pure tones and speech is adequate. The tone control still does not give a straightforward shift in frequency but rather a modification of intensity. With tone control in number 1 position one gets the overall frequency response of the instrument. In number 2 position the low frequencies are attenuated. In number 3 position both highs and lows are attenuated. The number 4 position steps up the lows .

Recommendation.—The construction of the instrument meets all requirements of the Council, and the individual parts are all of good quality. The performance of the instrument is entirely adequate for use by a person with impaired hearing. The Council on Physical Medicine voted to accept Zenith hearing aid Model A-2-A for inclusion in its list of accepted devices.

Council on Foods and Nutrition

ACCEPTED FOODS

The following additional foods have been accepted as conforming to the Rules of the Council on Foods and Nutrition of the American Medical Association for admission to Accepted Foods.

GEORGE K. ANDERSON, M.D., *Secretary.*

FOODS FOR SPECIAL DIETETIC PURPOSES (*See* Accepted Foods, 1939, p. 295).

The Chicago Dietetic Supply House, Inc.

CELLU BRAND JUICE-PAK DARK SWEET UNPITTED BING CHERRIES.

Analysis Edible Portion (submitted by manufacturer).—Moisture 81%, invert sugar 13.7%, sucrose 0.3%, crude fiber 0.2 %, undetermined carbohydrates, etc. (by difference) 2.9%, fat (ether extract) 0.8%, protein (N × 6.25) 0.7%, ash, 0.4%.

Calories.—0.6 per gram; 18 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - Chicago 10, Ill.

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SATURDAY, JANUARY 20, 1945

PHILADELPHIA SESSION CANCELED

The Board of Trustees of the American Medical Association, after consideration of all factors involved, has officially announced the cancellation of the Ninety-Fifth Annual Session of the Association scheduled for Philadelphia June 18-22. This is the fourth time in the Association's history and the second time during the present war that an annual session has not been held. In 1861 the annual session was postponed for a year because of the outbreak of the war between the states. In 1862 it was again postponed for a year. The 1943 annual session scheduled to have been held in San Francisco was canceled. Last year the session was held in Chicago. It is expected that a meeting of the House of Delegates will probably be held in 1945 in Chicago at a time to be announced later in THE JOURNAL. The action this year is taken voluntarily in order to cooperate to the fullest possible extent with the request of the Office of Defense Transportation and in the interest of the nation's war effort.

BREAD ENRICHMENT SHOULD BE CONTINUED

Among the important applications of the numerous advances in nutrition is the development of the program for enrichment of food. By order of the War Food Administration all baker's white bread, white rolls and sweet rolls must be enriched with vitamins of the B complex and iron to stated levels. The content of enriched baked goods in thiamine, niacin and iron is thus brought to the desirable high levels of these constituents found in similar products made from whole wheat flour. The value required for riboflavin slightly exceeds that of whole wheat preparations.

The continuance of these benefits to the nation's nutritional standard is not now assured beyond the duration of the emergency. The compulsory enrichment of baker's white bread and rolls terminates with the resolution of the wartime powers of the War Food Administration. The problem then reverts to the individual states as to whether enrichment of these foods will continue to be required. Legislation at the federal level would affect only those products handled in interstate commerce. Both federal and state action will be required to insure entirely effective regulations for enrichment of food throughout the country.

The need in the American diet for the additional amounts of nutrients supplied by enrichment of baked goods has been shown by dietary surveys. A summary of these surveys published by the National Research Council [1] revealed a strikingly high proportion of the diets below the recommended levels in one or more essentials. A detailed study of the average American diet prior to the advent of enriched flour and bread showed the thiamine content to be 0.8 mg. per 2,500 calories,[2] whereas the National Research Council's recommended daily allowance for thiamine is 1.6 mg. for this caloric intake. In an extension of the work mentioned the daily intake of riboflavin was determined to be 1.4 mg. and that of niacin 11 mg. per 2,500 calories.[3] Both these figures are below the value of 2.2 and 15 mg. respectively recommended by the Research Council for these dietary essentials.

The enrichment of flour and bread is considered particularly desirable because these foods are consumed daily in significant amounts by practically every one. They are relatively cheap foods and are therefore used extensively by the low income groups whose diets are most in need of improvement. The addition of thiamine, riboflavin, niacin and iron to white flour and bread serves to replace what has been lost in the milling process. The appearance and taste of the original food are not changed; the consumer receives added nutritional value without change in food habits or conscious effort. Enriched white bread is not intended to supplant the use of whole wheat bread by those preferring the latter.

The effect of the widespread increase in consumption of these enriching substances on the nation's nutrition as a result of mandatory enrichment of all white bread and rolls is difficult to measure accurately at this time. All methods of appraisal, however, indicate a definitely beneficial influence. It has been calculated [4] that, if all the flour and white bread in the average prewar diet should be enriched, the average thiamine intake would be increased to 1.6 mg., that of ribboflavin to 1.6 mg.

1. Report of the Committee on Diagnosis and Pathology, Food and Nutrition Board, National Research Council, Bull. 109 of the National Research Council, November 1943.

2. Lane, R. L.; Johnson, E., and Williams, R. R.: Studies of the Average American Diet, J. Nutrition **23**: 613, 1942.

3. Cheldelin, V. H., and Williams, R. R.: Studies of the Average American Diet, J. Nutrition **26**: 417, 1943.

4. The Facts About Enrichment of Bread and Flour, prepared by the Committee on Cereals, Food and Nutrition Board, National Research Council, September 1944.

and that of niacin to 17 mg. per 2,500 calories.[3] This would enable the average diet in this country to meet the recommended allowances for thiamine and niacin, with something to spare. The amount of riboflavin still falls short of the recommended level, but new information indicates that the daily allowance for riboflavin may appropriately be lowered. As more direct evidence of the contribution of bread enrichment to the improvement of this country's nutritional status, the statement made by Dr. Jolliffe of the New York University College of Medicine at a public hearing held by the War Food Administration Jan. 21, 1943 is particularly significant:

> I attribute to bread enrichment a marked and unmistakable decrease in florid beriberi and florid pellagra in my wards at Bellevue Hospital. In 1938-39 little bread was enriched; in 1942-43 seventy five per cent or more has been enriched in New York City. This has been accompanied by a decrease of three fourths in our cases of florid beriberi and two thirds in florid pellagra.

The benefits which accrue to the vastly greater number of individuals suffering from milder chronic degrees of these deficiency states, in many cases unrecognized or attributed to other causes, can probably be considered the greatest contribution of enrichment. An improvement in the general health and well being and an increased efficiency in the population as a whole may be anticipated, since carefully controlled experimental groups have shown measurable benefits as a result of dietary increases of enrichment materials to enrichment levels.

The Food and Nutrition Board of the National Research Council and the Council on Foods and Nutrition of the American Medical Association, groups particularly cognizant of the beneficial effect of nationwide enrichment of white bread on the American dietary, have called attention to the necessity of making this requirement permanent throughout the country. In 1941 the Board of Trustees of the American Medical Association approved the recommendations for bread enrichment. The American Public Health Association has recently adopted a resolution favoring appropriate federal and state action for the perpetuation of the benefits of enrichment. South Carolina, Louisiana, Alabama, Texas, Mississippi and Kentucky have already adopted legislation requiring the enrichment of all white bread and white flour sold within their borders. Similar legislation is being given consideration at present in other states. The physician, who can give effective support to these measures, should recognize the contribution made by the enrichment of bread to the improvement of our diets. If the nutritional gains thus far made are to be maintained, the active interest of every informed person who has the public interest at heart will be required.

PROLONGING THE ACTION OF PENICILLIN

The versatility of American medical research is well illustrated by the announcement of a third successful method of prolonging the therapeutic action of penicillin. Trumper and Hatter [1] of the National Naval Medical Center, Bethesda, Md., are credited with this technic.

Earlier investigators [2] found that within an hour after intravenous injection of penicillin fully 60 per cent of the injected dose is excreted in the urine. The penicillin titer of the blood stream falls to zero before the end of the second hour. As a result of the evanescent character of this drug, many of the earlier clinical cases failed of cure. In the Bethesda Hospital, of 10 patients with gonorrhea given a single intramuscular injection of 50,000 Oxford units of penicillin only 2 were cured. Two doses of 50,000 units each given at six hour intervals effected a cure in only 55 per cent of the cases.

The first successful method of prolonging the action of penicillin was by excretory blockade. This was effected by the simultaneous intramuscular injection of diodrast [3] or of p-aminohippuric acid.[4] Both of these substances reduce the rate of renal excretion of penicillin by about two thirds. As a result of this reduced excretion the penicillin titer of the blood stream is maintained at a therapeutic level for nearly six hours, well beyond the two hour effective therapeutic period in control, nonblockade, patients.

The second successful method of accomplishing the same result was by suspending penicillin in some inert oil that would slow down the rate of absorption from locally injected tissues. Romansky and his associates [5] tested several oils and waxes for this purpose and found that a mixture of peanut oil and from 1 to 6 per cent of beeswax gave the best results. Intramuscular injection of 50,000 Oxford units in 2 to 2.5 cc. of beeswax-peanut oil so slows down the rate of absorption from the injected muscle as to maintain an effective therapeutic level in the blood stream for a period of from six to seven hours. The mixture was tested on 65 patients with gonorrheal urethritis, 64 of whom were cured by a single intramuscular injection. This represents a 98 per cent therapeutic success as contrasted with the 20 per cent success in their earlier treatments with the same number of penicillin units dissolved in saline solution.

A third successful method is currently reported from the Bethesda Medical Center.[1] This is based on an attempt to delay absorption by prolonged vasoconstric-

1. Trumper, Bax, and Hatter, A. M.: Science **100:** 432 (Nov. 10) 1944.
2. Florey, H. W.; Abraham, E. P.; Chain, E.; Fletcher, C. M.; Gardner, A. D.; Healtey, N. G., and Jennings, M. A.: Lancet **2:** 177, 1941. Rammelkamp, C. H., and Keefer, C. S.: J. Clin Investigation **22:** 425, 1943.
3. Rammelkamp, C. H., and Bradley, S. C.: Proc. Soc. Exper. Biol. & Med **53:** 30, 1943.
4. Beyer, K. H.; Woodward, R.; Peters, L.; Verwey, W. F., and Mittis, P. A.: Science **100:** 107, 1944.
5. Romansky, M. J., and Rittman, G. E.: Science **100:** 196, 1944.

tion in the injected muscle. Vasoconstriction was effected by a chilling technic. An ice bag was applied to the deltoid region two hours before the intramuscular injection and replaced for a period of six to twelve hours after the injection. With this technic a single intramuscular injection of 50,000 units of penicillin in saline solution maintains an adequate bacteriostatic level of penicillin in the blood stream for from six to twelve hours. Thus far the chilling technic has been applied to 18 gonorrheal patients, 17 of whom were cured by a single intramuscular injection. This is a percentage of cure equal to that with the penicillin-beeswax-peanut oil mixture. Application of an ice bag two hours in advance of the injection renders the injection painless.

The chilling technic may be applied in research with other therapeutic agents. With specific antiserums it might well reduce allergic reactions.

Current Comment

FEDERAL HOSPITAL CONSTRUCTION PROGRAM

An appropriation of $110,000,000 is suggested in a bill pending in Congress to assist states in the construction of hospitals and related facilities. The bill, S. 191, was introduced January 10 by Senator Hill of Alabama for himself and Senator Burton of Ohio. It was referred to the Senate Committee on Education and Labor, of which Senator Murray of Montana is chairman. Of the total federal appropriation suggested, $5,000,000 will be available to assist states to inventory existing hospitals, to survey the need and to develop a program for new construction. An additional $5,000,000 will be available to cover the administrative expenses in carrying out state plans. The remainder will be used, if the legislation is enacted in its present form, for construction purposes. On a federal level the program will be under the direction and supervision of the Surgeon General of the U. S. Public Health Service aided by a federal advisory council all members of which, except one, will be appointed by the administrator of the Federal Security Agency. The Surgeon General will serve as chairman ex officio of the council. On a local level a state agency must be designated in plans submitted for approval as the administrative agency. The term "hospital" is broadly defined. It will include "public health centers and general, tuberculosis, mental, chronic disease, and other types of hospitals, and related facilities, such as laboratories, outpatient departments, nurses' home and training facilities, and central service facilities operated in connection with hospitals, but shall not include any hospital furnishing primarily domiciliary care." The term "public health center" is defined to mean "a publicly owned facility for the provision of public health services and medical care, including related facilities such as laboratories, clinics and administrative offices in connection with public health centers." It must be assumed that the Senate Committee on Education and Labor, through its recently created permanent subcommittee, which, it is announced, will consider all proposed public health legislation, will desire to give careful consideration to this legislation before recommending its enactment. A detailed analysis of the provisions of the bill will appear in an early issue of THE JOURNAL.

MORE STUDY OF FOREIGN LANGUAGES NEEDED

This war has apparently not been accompanied by any significant outbursts against the music, language or literature of enemy countries such as occurred in World War I. Indeed, the study of German, Japanese and some other languages has been actually stimulated, though this has been principally a practical project, wholly associated with contemplated military operations or ultimate occupancy of foreign countries. After the war scientific and medical discoveries will doubtless be made in what are now enemy countries and will be described in their own language and scientific periodicals. The opportunities and facilities for the study of foreign languages are far greater in this country than they have ever been in Australia, whose medical journal has recently taken editorial [1] notice of the need for such study there. The linguistic ability of most Americans compares unfavorably with that of Europeans and others who are exposed early in life to two or more languages. Many leaders of educational opinion in this country have claimed that there is no good reason to teach foreign languages in the schools before the usual high school age. This claim should be reexamined. Medical science has never failed to recognize the need for widespread dissemination of new discoveries; a most important instrument is comprehension of the language in which the discovery is made. Any improvement in methods, therefore, by which a greater knowledge of foreign languages can be achieved in this country will deserve the support of the medical profession.

CONGRESSES ON MEDICAL EDUCATION AND INDUSTRIAL HEALTH

At the time of going to press the status of the Congress on Medical Education and Licensure, which is scheduled to convene February 12-13, and of the Congress on Industrial Health, scheduled for February 13-15, is not altogether clear. Since these two meetings were organized for the purpose of contributing to the war effort the Office of Defense Transportation has been asked for a ruling on whether these meetings should be held. As soon as a decision has been reached the profession will be promptly notified through the pages of THE JOURNAL. In the meantime, participants and prospective visitors to the congresses should plan on their being held.

1. Australian Medicine and Foreign Language, editorial, M. J. Australia **2**: 515 (Nov. 11) 1944.

MEDICINE AND THE WAR

ARMY

FLIGHT NURSE SAVES LIFE OF PATIENT INJURED IN CRASH LANDING

The War Department recently revealed the heroic action by a flight nurse aboard an Air Transport Command evacuation plane in the South Pacific. Second Lieut. Mary Louise Hawkins, Redwood City, Calif., was the flight nurse in charge of 24 litter patients, Palau battle casualties, en route to Guadalcanal when the plane began running short of gasoline. The pilot, passing over a tiny island, noted a clearing 150 feet square fringed by tall coconut palms and decided to attempt a crash landing in this restricted area rather than ditch the plane at sea. During the landing of the C-47 a propeller tore a hole in the side of the fuselage; patients and crew were uninjured with one exception. The injured man received a severe cut in his throat, which severed the trachea but missed the jugular vein. Through the swift and efficient work of Lieutenant Hawkins the man's life was saved. She devised a suction tube from various accessories including an asepto syringe, colonic tube and the inflation tubes from a Mae West. With this contrivance she was able to keep the man's throat clear of blood until aid arrived nineteen hours later. Lieutenant Hawkins graduated from the Highland Hospital School of Nursing, Oakland, Calif., in 1942 and immediately enlisted in the Army Nurse Corps. After a year at AAF Hospital, Walla Walla, Wash., and Camp Kearns, Utah, she was chosen for special training as a flight nurse. Assigned to the Air Transport Command in August 1944, she was sent immediately to her present station in the South Pacific Wing.

COLONEL ANTHONY J. LANZA RETIRES

Col. Anthony J. Lanza, director of the Occupational Health Division, Preventive Medicine Service, Office of the Surgeon General, has retired from active duty to resume his work as assistant medical director of the Metropolitan Life Insurance Company. Dr. Lanza is credited with the establishment of the Army Industrial Hygiene Laboratory at Baltimore, which makes surveys and recommendations for the control of occupational hazards on request by any army branch. He was also instrumental in organizing the Armored Medical Research Laboratory at Fort Knox, Kentucky, to conduct medical, physiologic and engineering research for the Office of the Surgeon General so that our fighting men might be better equipped and prepared to withstand the rigors of adverse climatic conditions. Prior to entering the Army Dr. Lanza was for sixteen years assistant medical director of the Metropolitan Life Insurance Company in charge of industrial hygiene. He is also a member of the Council on Industrial Health of the American Medical Association.

HOSPITALIZATION OF RETURNING CASUALTIES

Major Gen. Norman T. Kirk, Surgeon General of the Army, recently stated that the large increase in casualties returning from the battlefronts is making it impossible to send all patients to hospitals near their homes. General Kirk said that more than 30,000 sick and wounded were brought back to this country in December—an increase of 300 per cent over July. The three principal factors which guide the medical department in the selection of the hospital to which a soldier is sent are:

1. Where can the patient get the best treatment for his particular case?

2. What hospitals offering such specialized services have the facilities to care for additional cases?

3. What suitable and available hospital is located nearest to the soldier's home?

ARMY AWARDS AND COMMENDATIONS

Captain Samuel S. Pasachoff

The Bronze Star Medal was recently awarded to Capt. Samuel S. Pasachoff, formerly of New York City. The citation read "For meritorious service in connection with military operations against the enemy as general surgeon, 45th Evacuation Hospital, Semimobile, from Nov. 24, 1943 to Aug. 1, 1944 in England and France. Captain Pasachoff performed skilful operations on wounded soldiers, often going for long periods without rest or relief. In addition he designed and constructed numerous surgical articles which proved highly essential to the efficient operation of the hospital. The professional skill, ingenuity and devotion to duty displayed by Captain Pasachoff reflect credit on himself and the military service." Dr. Pasachoff graduated from New York University College of Medicine in 1929 and entered the service March 22, 1943.

Major Harvey D. Bingham

Major Harvey D. Bingham, formerly of Mercer Island, Wash., was recently awarded the Bronze Star Medal "for meritorious service in connection with military operations against the enemy from June 26 to Aug. 1, 1944. As chief of the surgical service in a station hospital at Kwajalein, Major Bingham organized a surgical staff which functioned smoothly in spite of crowded facilities and inadequate equipment. Established as a 400 bed unit, the hospital cared for 2,900 casualties in less than six weeks. Major Bingham's surgical skill and judgment were a vital factor in the excellent professional care rendered." Dr. Bingham graduated from Washington University School of Medicine, St. Louis, in 1938 and entered the service Feb. 3, 1941.

Major J. Marion Kirtley

Award of the Bronze Star was recently made to Major J. Marion Kirtley, formerly of Crawfordsville, Ind., who is now commander of the medical detachment of the 22d United States Infantry with the 3d Army in Germany. His detachment turned in a remarkable performance in caring for the wounded in the Hurtgen forest fighting recently in Germany. Dr. Kirtley graduated from Indiana University School of Medicine, Indianapolis, in 1936 and entered the service Dec. 14, 1940.

Captain Garland N. Adamson

Capt. Garland N. Adamson, surgeon of a tank battalion and formerly of Chicago, was recently awarded the Bronze Star Medal "for heroic achievement in connection with military operations against an enemy of the United States in France, on Nov. 11, 1944. . . ." Dr. Adamson graduated from Meharry Medical College, Nashville, in 1922 and entered the service in November 1942.

Major Edmund G. Beacham

The Bronze Star Medal was recently awarded to Major Edmund G. Beacham, formerly of Baltimore, for "meritorious achievement in military operations against the enemy from June 7 to July 4, 1944, in Normandy, France." Dr. Beacham graduated from the University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, in 1940 and entered the service Feb. 3, 1941.

Major Anthony S. Terranova

Major Anthony S. Terranova, formerly of Brooklyn, was recently awarded the Bronze Star Medal for "meritorious achievement." Dr. Terranova graduated from Georgetown University School of Medicine, Washington, in 1937 and entered the service July 15, 1942.

NAVY

CAPTAIN RODDIS HEADS MEDICAL HISTORY BOARD

Vice Admiral Ross T. McIntire, chief of the Bureau of Medicine and Surgery, has recently approved establishment of a Medical History Board in the Bureau of Medicine and Surgery which will be headed by Capt. Louis H. Roddis (MC), U.S.N., as chairman.

"The board, through its chairman, shall report to, advise and assist the Surgeon General on all matters within its scope as hereinafter defined.

"The functions of the Medical History Board shall be (*a*) to plan, cause to be prepared and edit an official history of the Medical Department of the U. S. Navy, (*b*) to coordinate historical activities within the Bureau of Medicine and Surgery and the Medical Department, as well as with the Office of Naval History, Navy Department, and (*c*) to maintain liaison with such other military and civilian historical agencies as may be required in the prosecution of the functions of this board.

"Establishment of said board does not preclude Medical Department personnel or activities preparing historical accounts on subjects of special cognizance, concern or interest, but any and all of these must be submitted to said board for review, coordination and approval before they can be recommended for official publication."

MEDICAL CORPSMAN WINS NAVY CROSS

The Navy Cross for "gallantry and intrepidity in action" while attending wounded and dying men on the Normandy beaches on D day, has been awarded to August B. McKee, hospital apprentice, formerly of Jersey City. The citation, in part, states that "McKee, cut off from the remainder of his unit and working under intense enemy fire with utter disregard for his own safety, attended the wounded with such skill and devotion to duty as unquestionably to have resulted in the saving of many lives. . . . Working with such meager supplies as he was able to salvage from the dead and wounded, and all the while working under intense machine gun and sniper fire, McKee attended the wounded and comforted the dying with utter disregard for his own safety until help reached him several hours later."

LIEUTENANT ROBERT BROWNE MISSING

Lieut. Robert Browne, formerly of Peoria, Ill., has been reported missing in action. He was stationed on a destroyer which was lost in the Philippine action in October. Dr. Brown graduated from the University of Illinois College of Medicine, Chicago, in 1942 and entered the service in July 1943.

MISCELLANEOUS

WARTIME GRADUATE MEDICAL MEETINGS

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

Induction Center, Grand Central Palace, New York: Diagnosis of Anorectal Disease, Dr. Max Cowett, February 2; Head Injuries, Dr. Eli Jefferson Browder, February 9 and February 16.

U. S. Naval Hospital, Philadelphia: Edema and Dehydration, Dr. F. William Sunderman, February 9; The Esophagus and Its Diseases, Dr. L. H. Clerf, February 23.

U. S. Naval Hospital, Naval Operating Base, Norfolk, Va.: Nucleus Pulposus—Medical Aspect, Dr. Lay Martin, February 2; Nucleus Pulposus—Surgical Aspect, Dr. Francis J. O'Tenasek, February 2.

Newton D. Baker General Hospital, Martinsburg, W. Va.: Indications for Use of Sulfonamides and Penicillin, Dr. Henry B. Mulholland, February 5; The Psychoneuroses in War, Dr. David C. Wilson, February 5; Treatment of Patients with Paraplegia Due to War Injuries, Dr. Donald Munro, February 19; Liver Diseases Seen in the Present War, Dr. Wallace Yater, February 19.

Station Hospital, Fort Belvoir, Va.: Skin Eruptions of the Eczema Group, Dr. Walter O. Teichmann, February 26.

Station Hospital, Fort George G. Meade, Maryland: Evaluation of the Surgical Risk, Dr. John Finney Jr., February 2.

Crile General Hospital, Cleveland: Technic of Closure of Colostomies, Dr. Thomas E. Jones, February 27.

Air Base Hospital, Patterson Field, Dayton, Ohio: Diagnosis and Surgical Treatment of Acute Cholecystitis, Dr. George Heuer, February 21.

Winter General Hospital, Topeka, Kan.: Plastic and Maxillary Surgery, Dr. Earl C. Padgett, February 22; Clinical Psychiatry, Dr. G. Leonard Harrington, February 22.

Tilton General Hospital, Fort Dix, New Jersey: Pathology of Allergy, Dr. Paul Klemperer, January 22; Post-Traumatic Pain Mechanisms, Dr. E. A. Rovenstine, January 29.

Mayo General Hospital, Galesburg, Ill.: Dermatologic Diseases, Drs. James H. Mitchell and Francis E. Senear, January 24.

Birmingham General Hospital, Van Nuys, Calif.: Classification and Diagnosis of the Anemias, Dr. Alvin Foord, January 24.

U. S. Naval Hospital, Oceanside, Calif.: Psychosomatic Medicine, Dr. Douglas Eaton, January 25.

U. S. Naval Hospital, Corona, Calif.: Surgery of the Traumatic Abdomen, Dr. Charles Phillips and Comdr. Gaylord Bates, January 25.

FILM DEPICTS FITTING PROSTHESES

British Information Services (30 Rockefeller Plaza, New York 20) now has available, for sale or loan, a two reel film revealing the part played by modern science in the making and fitting of artificial limbs, by means of which disabled persons are able to follow their old occupations or work at new trades which are taught them at government training centers. Participating in the film are former patients of Roehampton, one of Britain's hospitals devoted to the treatment of limbless war casualties. The film shows how men with the new artificial limbs are able to work at engineering, drafting, carpentry and other highly skilled occupations which formerly they could not have followed. With the aid of special tools provided by the government they are now able to work at these trades with speed and absolute efficiency. Some of these men are shown in their hours of recreation playing tennis, golf, billiards or table tennis or at work in the garden.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment service:

(Continuation of list in THE JOURNAL January 13, page 97)

MASSACHUSETTS

Boston City Hospital, Boston. Capacity, 2,537; admissions, 35,559. Dr. James W. Manary, Medical Director (resident—dermatology-syphilology).

Cambridge Hospital, Cambridge. Capacity, 272; admissions, 6,078. Dr. F. A. Washburn, Director (intern, July 1; male preferred).

Burbank Hospital, Fitchburg. Capacity, 270; admissions, 4,303. Mr. Richard Bullock, Directing Trustee (intern, April 15, July 1).

Waltham Hospital, Waltham. Capacity, 215; admissions, 3,299 Mr. Walter R. Amesbury, Administrator (2 interns, July 1)

RHODE ISLAND

Homeopathic Hospital, Providence. Capacity, 196; admissions, 5,439. Mr. Carl A. Lindblad, Director (interns, July 1).

WEST VIRGINIA

Charleston General Hospital, Charleston. Capacity, 380; admissions, 10,439. Dr. John E. Cannady, Director (intern; resident—pathology).

WISCONSIN

Luther Hospital, Eau Claire. Capacity, 176; admissions, 4,006. Mr. N. E. Hanshus, Manager (intern, March 1; intern, May 1; general resident, July 1).

ORGANIZATION SECTION

ANNUAL CONFERENCE OF SECRETARIES AND EDITORS OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

SECOND SESSION, FRIDAY AFTERNOON

DR. D. L. CANNON, Montgomery, Ala., Presiding

(Continued from page 106)

Medical Service Plans

DR. ROBERT E. S. YOUNG, Columbus, Ohio: The wealthy, who comprise perhaps 6 to 8 per cent of our population, need no particular plan for medical care. There is a large group of the middle and low income levels that definitely need a plan for prepayment medical insurance. The C. I. O. in its report on hospitalization in 1940 pointed out that nine out of ten of its families are dependent on the wage earnings of one person, and that one third to one half of the poverty arising in each family is due to the illness of this wage earner. The people in this group desire insurance coverage. A great part of our population have already availed themselves of prepayment insurance. There are now approximately 15,000,000 people covered by the Blue Cross Hospitalization Plan. There are now approximately 18,000,000 subscribers covered by industrial and commercial insurance plans. Considering the number of people who are covered by labor plans, by benevolent associations and by brotherhood plans of various types, including their dependents as well, at least half of the population would seem to be already covered by some type of prepayment insurance plan.

There is a third group in our population, the indigent and the medically indigent, who need medical service and cannot and will not be able to pay for it. Prepayment insurance cannot reach this group. One might think that governments would be interested in protecting this group; apparently they are not. The indigent are receiving care from the medical profession and from the hospitals largely on a charity basis. Why isn't the solution of the problem simple? It is not simple because medical needs vary with different localities. The cost of medical care that is purchased on a need basis is higher in our Northern states and in our large cities than it is in the Southern rural areas. It would be difficult to fit a plan to all areas of the United States. Plans of this sort are pregnant with political power, and political power is interfering with the formation of a plan.

We have long known the cash indemnity plans which commercial insurance companies offer. We owe it to our county societies to educate them about the difference between a cash indemnity plan and a service plan. Few know the dangers and evils of both and the good points of both. In a cash indemnity plan it is fundamental that there is no contract between the physician and the patient. The contract is between the patient and the insurance company. This tends to fix the minimum fees for physicians, but it is no ceiling on maximum. This is important. A physician in times of inflated prices, as today, may charge more than an insurance policy will pay. He can receive payment from the patient, from the insurance benefit and an additional fee from his patient himself. In more normal times the fee probably would cover the service. In periods of depression it is doubtful if any physician would charge less than the minimum fee. This fixes the minimum fee for medical service. A service plan fixes the maximum fee. A plan such as the Michigan Medical Service, for example, started out as a pure service corporation. The fee schedule was a little lower than normal because physicians thought that if they collected all of their fees they would not suffer the loss usually taken in poor collections. However, these plans are nonprofit corporations. If premiums are adequate to cover the submitted bills and are building up, so that a reserve fund is being formed, either benefits must be increased ultimately or premiums must be lowered. If, however, the premiums collected are not sufficient to cover the benefits or the medical bills, the medical bills must be prorated. Now in most service plans proration has been experienced. In other words, no floor is put under medical fees. They may go down as far as proration makes it necessary, but a ceiling has been placed on medical fees in that the physician cannot charge more than the fee schedule.

The Michigan Medical Service Plan found, as most service companies have found, that it was necessary to modify the pure service corporation and approximate a cash indemnity form. It therefore dropped out the medical service and kept only the surgical benefits. It agreed that, if a patient had an income greater than the income level set in the plan, the physician might charge an additional fee. In February 1943 the average income of people in the state of Michigan was $52.81. These are Department of Labor statistics. The income level under the Michigan Medical Service Plan is $2,500 for the family. This put virtually every one in the state of Michigan over the income level of the Michigan Medical Service Plan. It is necessary for the doctor to prove that an individual's income is higher than the income levels of the plan. This makes it difficult in these times for physicians to charge more than the fee schedule.

The second great danger in a service corporation that does not exist in a cash indemnity corporation is the intervention of a third party. I am using Michigan Medical Service because it is the largest service corporation. In the cities of Flint and Pontiac the physicians became dissatisfied with the plan and published a statement in the newspapers that they were going to drop out of it. There is considerable danger in service plans that are developed on a cooperative basis that a third party may take over the plan. In periods of depression people who have put off medical services because they were busy, perhaps working overtime, may delay their need for services until a more advantageous time. In a recession more service will be required under a service plan than is required now. If that becomes necessary, proration will probably again be necessary. The plan is dependent on pay roll deduction. If we have general unemployment the plan will cease to function. One of the men from the Michigan Medical Service, when I was there in 1942, stated that the Educational Research Department of Social Security had suggested that they underwrite the loss of the Michigan Medical Service, which I believe at that time was about $700,000, if they would bring physicians under salaries, that being a fit cause for the expenditure of educational funds. I wonder what will happen to service plans if unemployment becomes general and unions insist on the operation of such plans. Have we opened ourselves to a subtle infiltration of federalization? I am afraid that we have and we at least should think about this point and build our defenses for it.

Blue Cross Hospitalization has long felt the need for an extension of its policy to cover medical, surgical and obstetric charges. In Ohio we found that Blue Cross first had attempted to form a stock company which it could control, but this plan had been rejected by the superintendent of insurance, who stated that it would be impossible for them to transfer funds from the Blue Cross for the purpose of starting another company. It then approached the Ohio State Medical Association with a plan for the development of a mutual insurance company which might be largely financed by physicians, with the thought and suggestion that this would give physicians control. It even stated that the board of trustees could be completely formed of physicians. However, in a mutual insurance company the incorporators have no power other than to appoint the board of trustees and the director. The money, funded and placed with the superintendent of insurance, has no power of control. The control in a mutual insurance company lies with the subscriber. It was thought by the directors of the Blue Cross movement that if proxies were sent down to the subscribers through a subscribers' committee—and a subscribers' committee had been organized by the Blue Cross director in Ohio to func-

tion in industry—they would be signed and returned to the director and he could then return the company. However, this is questionable. It has been my experience in studying plans all over the United States that labor is interested in control, and if proxies came down through their own subscribers' committees the proxies would be returned to the unions; then the unions would control the new mutual insurance company which was working with Blue Cross. If this should be true, the plan would then become a consumer cooperative. Because of the necessity that Blue Cross faced in its need for a policy to write these additional benefits, they could exert considerable influence on Blue Cross to conform to the consumer cooperative. Physicians then could be approached if they charged more than the cash indemnity benefit. The director of Blue Cross, who would also be director of the Mutual Insurance Company, could approach the hospitals and exercise some disciplinary power on physicians through the hospitals to maintain the fee schedule set up by the mutual insurance company. If that should be true—and we felt that it probably would be—the fee schedule would become only secondary in importance because it could be changed. For that reason in Ohio we rejected this plan of a mutual insurance company and suggested that a stock company be formed which would be controlled by the medical profession and would write medical, surgical and obstetric benefits on a cash indemnity basis. This new company will not be associated directly with the Ohio State Medical Association. If it should fail or if it should become unpopular, the Ohio State Medical Association would suffer. We hope that we may distribute the stock to a large number of physicians, that one physician may never own more than a small part of the stock, and that it will never pay dividends but that premiums and benefits will be adjusted, so that in effect it will become a nonprofit organization. The directors of Blue Cross in Ohio rejected this plan, since they saw nothing in it that they could carry to their board of trustees. We think that in their rejection we proved our point that they were not interested in a new company to cover the needs of the people but were more interested in control.

What do we need to further prepayment insurance? We need more people in our county societies who understand the principle of insurance. They must at least understand the differences between cash indemnity and service plans. We need county societies that are willing to discuss such problems. I think that we should start in the medical schools, and I suggest that chairs be established in medical schools to teach medical economics and sociology. We should include our medical students in our county societies under some type of membership and let them become interested in organized medicine. Our interest in organized medicine needs to be stimulated now. Any means that we can devise to stimulate it is necessary.

DISCUSSION

Dr. Wilfrid Haughey, Battle Creek, Mich.: We have a medical service plan in Michigan; I participated in the development of it, from the time it started in our county medical society until the time it was adopted by the state; I am still on the board of directors; in fact, I am vice president. We had plenty of trouble; we were the originators; we had to do something for which there was no program; we were developing something new and we had to try and plan. We set up our plan first to cover complete medical and surgical care in the home, in the office and in the hospital, and we got stung. We had surveys made. We spent a lot of money trying to find out what it cost to take care of the people. We found out what the cost is in Michigan to take care of the people when they are paying their own medical service. We spent around $20,000 to find that out. Then we took those figures and doubled them, figuring that we would have an adequate rate. If we had multiplied them by 4½ we would have had an adequate rate. We started out with about 8,000 policyholders in the complete medical care program, and before we could finish them up at the end of the year we were in debt $150,000. Now, we also started out with a surgical plan, which we are still running. We never were $700,000 in the hole, but we were $504,000 in the hole on Oct. 30, 1942. At that time we had prorated for four months. Instead of paying our doctors 100 cents on the dollar, we paid them 80 cents on the dollar. That was part of the plan. Every cent of that has been paid back. We owe nothing. We have a little balance, a surplus or a reserve, whatever you would call it. We also have some funds to work on which we did not have to start with. We now have over 720,000 persons being served by the Michigan Medical Service. We have about $300,000 of government bonds and quite a little money in the bank. We have some reserves set up for bills that the doctors haven't sent in yet. That was in the $500,000. We are expecting to get those bills in and to pay them. Some of the Genesee County men did sign up with us at first. One man from Genesee County opposed the whole plan from the first. A lot from Genesee County have opposed it ever since. They said that we had no business to go into the insurance business anyway, that it was an insurance business and not a medical business. They wanted us to make a cash indemnity plan. The C. I. O. had some influence in our getting the Chrysler Corporation. They made a study of all insurance plans, nonprofit and profit, voluntary and everything else that they could find. They made a study that extended over four or five months. They published a pamphlet of sixty-odd pages, and the conclusion was that the best plan for their own interest was the Michigan Medical Service. While this company wanted to take out insurance in an old line company, they compelled them to take the Michigan Medical Service. That is where the C. I. O. helped us. C. I. O. did have a quarrel with some of the doctors up in Flint too, but the doctors in Flint did not come back after two months. They are not back yet. The doctors in Flint are practicing, not as cooperating doctors but as doctors who render service and send their bills. They still do not send their bills to the Michigan Medical Service. They send their bills to the patients. The patients send the bills to the Michigan Medical Service. The checks are written and accepted. There is one member of the C. I. O. on our board and I have seen him attend just two meetings in the last five years; none of those have been within the last two years. He attended one meeting when we were having trouble with the Genesee County delegation. He brought with him a whole committee, and the committee told us that they would see to it that Genesee County came into line. All they wanted was for the Michigan Medical Service to go ahead and do business. Within the next two or three years we are going to know whether we are going to be practicing medicine as individuals or as employees of the state. You should offer a service that will prevent the Murray-Wagner-Dingell bill. How are you going to offer a service unless you offer it through medical service plans, and how better to offer it than through a plan that is absolutely administered by the medical profession? There is no dictation.

Dr. W. F. Donaldson, Pittsburgh: No hospitalization dictation, Doctor?

Dr. Haughey: No, sir, we run our own plan.

Dr. Donaldson: Could you take time to outline your relations with Blue Cross?

Dr. Haughey: When we started, the Blue Cross plan had been working in Michigan. It had a sales organization and was a going concern, I think with around 150,000 subscribers. We hooked up with them. They sell our program at the same time they sell their own. They present both wherever they make presentations. Sometimes our program is taken and sometimes it isn't, as testified to by the fact that we have 720,000 certificates and they have 1,200,000. They got to the point this last spring where they could not sell more policies because the Michigan Medical Service had held up on our sales to big companies. We held up because of the deficit, which was never $700,000, but we wished to pay it off. It is paid off. Now we are again selling policies, and we have sold over 100,000 policies in the last five months. Michigan Hospital Service has sold more than that. They sell our policy. They collect the money from the employer. It comes to the central office in one check for both hospital service and medical service. They pay us our part and we pay them a certain percentage for handling that part of our program. We are paying them 7 per cent right now for handling that part of the program, the sales and the collection from the employers and a lot of records and things that are kept, bookkeeping and so on. The rest of it

we handle ourselves, and our rate of cost is around 10 cents. We must sell these things. I think that Ohio is delaying Michigan by not coming into this. I think that any state that does not start something of this nature to meet the Wagner-Murray-Dingell bill is setting back the progress of our fight against regimentation of medicine. I do not see any other way to beat it than to offer what these dreamers are offering. Who is going to take this service? The working man does not stop to think things out. He takes what he is given. The government says "We will give you complete medical care, hospitalization, office and everything else." He accepts it unless we can show him something that is just as good and does not cost him as much. There is an item too! It does not cost as much under our plan as it does under the government plan. Kaiser was touted as having a wonderful plan. The Kaiser plan does not meet the services that Michigan is rendering to the doctors. It costs more and they don't give the services. The Kaiser plan charges $50 extra for an obstetric case. The Kaiser plan charges $10 extra for a tonsil case under 16 years of age. The Kaiser plan provides one hospital to which they can go. It provides a complete choice of doctors, provided the doctor is one in this hospital or on a certain list that is published in their circular. We make no restriction on the doctors. The patients choose their own doctors, and the doctors are getting their checks within about ten days or maybe two weeks.

DR. OLIN WEST, Chicago: Dr. Haughey, will you be good enough to explain the nature and extent of the service that is rendered under the Michigan service plan and to say whether or not it is contemplated that the total medical service feature will be reinstated?

DR. HAUGHEY: The Michigan Medical Service now renders surgical service in the hospital. It pays up to $15 for x-ray service in connection with any surgical service or if it is contemplated. It pays for obstetric service in the hospitals. We have set up a tentative rate and authorized the sale of up to $50,000 of those policies, and we expect to service them until we know some of the things that we have found out in surgery. When we find that our rates are right we expect to cover that. We are also studying complete service. We do not expect to offer it immediately, but we can. We think we know what it would cost, and we could offer it if the occasion demanded it. There is a lot of agitation in Michigan, and it comes chiefly from Genesee County, that we authorize surgical service any place but not in the hospital. They say that our paying for surgical service in the hospital clutters up the hospitals and they say that they cannot get their legitimate cases in because they have minor cases in the hospitals. Our experience with complete medical service is still rankling a little, we do not know the answer, nor does anybody else.

DR. WEST: Your contemplated medical service will be for hospitalized service only?

DR. HAUGHEY: That will all be service in the hospital.

DR. WEST: Your present volume does not include any medical service other than these surgical and obstetric cases?

DR. HAUGHEY: Surgical and obstetric is the present volume. We canceled out all of that other. In order to get on our feet we had to do so.

DR. H. H. SHOULDERS, Nashville, Tenn.: Doctor, may I ask if you have tried to sell it to individuals or just to groups?

DR. HAUGHEY: We sell it just to groups.

DR. SHOULDERS: You have had no experience with what the cost of the sale would be if it was sold to individuals?

DR. HAUGHEY: We will take a group as small as ten if it is a legitimate group.

DR. SHOULDERS: That is under one employer?

DR. HAUGHEY: One employer, a legitimate group, and that group must be 100 per cent. For the big groups we require 75 per cent coverage. We did not at first. We were told that 40 per cent coverage was perfectly legitimate and safe, but it is not. We found that out.

DR. R. L. SENSENICH, South Bend, Ind.: Does the 10 cent cost that you quoted include the 7 cent cost of acquisition?

DR. HAUGHEY: No.

DR. SENSENICH: That is a total of 17 cents?

DR. HAUGHEY: That makes a total of 17 cents. I am not sure of that. That 7 cents may be included in the 10 cents. I haven't looked that item up.

DR. SENSENICH: I should imagine that it would be more than 10 cents, based on other charges.

DR. HAUGHEY: I think the 10 cents covers our office and the 7 cents covers the other.

DR. R. B. ANDERSON, Fort Worth, Texas: I just wanted to ask if the obstetrics is covered only in the hospital.

DR. HAUGHEY: Obstetrics is covered only in the hospital. All of our service is covered in the hospital. The time that these laboring people suffer a catastrophe is when they have to go to the hospital. The average can take care of the cost of $2 or $3 for a visit at his home or at the office.

DR. F. F. BORZELL, Philadelphia: May I ask what experience you have had in your relationship with the Blue Cross plan, that is, in their selling the plan and turning the funds over to you? I am assuming that you adjudicate all claims, both of the subscriber and of the doctor.

DR. HAUGHEY: We do all that ourselves.

DR. BORZELL: Has the Blue Cross had any difficulties from that score, in that it is your agent and representative and then later on any questionable claims for medical service must be referred to the Medical Service Plan?

DR. HAUGHEY: The Medical Service takes the medical claim; the Blue Cross takes the hospital claim; then we have a committee that meets periodically and adjusts whatever differences there are.

DR. SHOULDERS: What is your present rate, Doctor?

DR. HAUGHEY: I think it is a basic 60 cents per month for an employed male. The employed female has to pay more.

DR. E. L. HENDERSON, Louisville, Ky.: Don't you include the family?

DR. HAUGHEY: We have a rate for the family too. The rate as assessed when we sell the policy is a schedule apportioned between the number of men and the number of women employed in the group that is insured, so that the rate is different for each factory.

DR. WINGATE M. JOHNSON, Winston-Salem, N. C.: North Carolina was the first state in the Union to have a hospital coverage. In 1935 DR. Mannerzan was the president of the state medical society. He offered that as a recommendation. He was made chairman of the committee, which went to work, and we have had a Blue Cross plan in operation since 1936. A year ago last May we added to it the surgical and obstetric coverage.

DR. W. EDWIN BIRD, Wilmington, Del.: The Delaware plan was operating in the fall of 1935.

DR. GEORGE H. KRESS, San Francisco: You may be interested in knowing something about the statewide medical service on the service basis, that of the California Physicians Service, now in its sixth year, which has a gross income of $1,500,000 on the unit basis, paid to the doctor for an office visit. The unit of payment is $2.50. We are now paying $2.25 and there is every prospect in the near future of the full normal unit being paid to our men. I am in full accord with what Dr. Haughey has said about the value of the service plan. I concur in his point of view, and I think most Californians would likewise, that the indemnity plan will only lead to disaster. You will not be able to sell it to the people and to the political powers when it comes to taking over, in case the government does ultimately take over. During the last year we found that it was desirable to make some changes in our mode of operation from our idealism of six years ago. The California Physicians Service started out with something like 5,000 professional members. It charged $5 registration, which netted $25,000. The California Society lent $42,000. They made blunders and as time went on, just as Michigan had its experience of running into the red, so did California Physicians Service run into the red. This last year, instead of letting the California Physicians Service be an absolutely separate entity, we brought it back into the California Medical Association. To that extent I must oppose the recommenda-

tion of Dr. Young not to let the state society have anything to do with it. The most potent force from the standpoint of protection of the medical interests is your constituent state association and the component county societies. The indirect board of directors was a group of administrative members, voted in by the doctors, presumably from the congressional districts, but in a state as large as California it is not possible to bring them together. It was the board of administrative members that elected the seven trustees. We changed the setup through legislative action in our incorporation. Now the house of delegates of the California Medical Association recesses at its annual session and becomes the board of administrative members of the California Physicians Service.

DR. HAUGHEY: That is the way we do in Michigan.

DR. KRESS: And it is the board of administrative members that elects the trustees. The whole thing today comes back into the full and absolute control of the California Medical Association. It isn't the lay public that endangers a plan such as the Medical Service Plan. When you get to operating in your own groups and territories you will find that your troubles are within the profession itself. Just as Michigan has had troubles, so have we had troubles. In San Diego everybody is satisfied and the profession is working hand in hand with us. In Alameda there is a strong group that is reluctant to accept the program, as is Genesee County. By and large the members are working with us and are beginning to see the benefit of this setup. Before you start your plans, study carefully the Michigan and California plans, the service setups, because through trial and error, with no actuarial experience, they have learned some things. It would be a great pity for you to make the same mistakes that they made and had to learn at a loss of dollars and a great deal of trial and tribulation.

MRS. ELIZABETH D. BOLLIS, Honolulu, Hawaii: We have a medical plan in Honolulu that has now been operating since 1939. It was revised rather in 1939, and since its revision it has been most successful. It is, of course, much smaller than the Michigan and the California plans, but we give a medical service, a surgical service and a hospital service. We had no Blue Cross in Honolulu and so we had to start from scratch. All the doctors in the county participate. The doctors are paid for the service, and since the reorganization of the plan they have received 100 per cent of the bills that they have presented. The bills are presented according to a fee schedule. We had to start with the revision of the plan by taking the plans that were already in operation or, in most cases, proposed, and we took from them what we thought were the best provisions. Michigan has just told you of the experiences that it has had and so has California. Both California and Michigan must have a wealth of material in their statistics and in their experiences that these other plans that are just beginning to originate could profit by. In most plans the waiting periods are alike. In some plans the premiums are alike. You will have to meet your local conditions and your local doctors' wishes.

DR. C. A. SMITH, Seattle: I should like to say something about the Medical Service Bureau that exists in Washington, because it differs in some respects from that of any other state. Chronologically this practice was first established in Washington. It is between twenty-five and thirty years ago that the Pierce County Medical Society in Tacoma set up its Medical Service Bureau. Since that time five counties have set up these bureaus. Each one is autonomous, but the principles are the same in all of them. They furnish medical, surgical and hospital service to their clients. Something over a year ago the insurance commissioner of the state declared that these bureaus were in reality carrying on an insurance business and demanded that they be incorporated as insurance companies. After due deliberation the Washington Medical Insurance Corporation was established and the fifteen medical bureaus of the different societies carry on the business. According to the insurance corporation they provide service to individuals, to groups and to families. They provide medical, surgical and hospital services. Washington has never had anything to do with the Blue Cross. The medical service bureaus were established and working a good many years before it appeared. The men of Washington could not see that the Blue Cross offered anything to employees that weren't already being furnished by the Medical Service Bureaus. Washington is one of the few states in which the Blue Cross is not working a plan. They sell their policies in Washington, but they work them through the Blue Cross headquarters in Portland, Ore., and have nothing to do with the medical bureaus' services. King County, which is the largest county, now has its own hospital and, strange to say, it has been presented to the bureau by the United States government. Two years ago, when the shortage of hospitals existed in all parts of the country, there was a shortage of beds in Seattle. Industry has been much expanded in Seattle by the shipbuilding yards. There was a great shortage of hospitals. PWA offered to allocate $600,000 if the county commissioners would provide $200,000 to build a 200 bed addition to the county hospital. Before the commissioners could do that they had to get the consent of the voters. When it was put up two years ago there was not a sufficient vote to carry that through, so then some of the officers of the King County Medical Service Bureau suggested that they should make an approach to accept this offer from the PWA. They investigated, and we all thought it was a great tribute to the success of the bureau and a mark of confidence by the government officials in their executive ability that they accepted the plan. About a month ago this Doctors' Hospital was completed and is now accepting patients. The cost was approximately $1,000,000, of which the government supplied $665,000 and the Medical Service Bureau, through its corporate body, which is called the Medical Service Corporation, provided the remaining funds. The local bureau averages about 80 patients continually in the hospital. They had a lot of trouble with the hospital previously as to financial arrangements, so that the remaining beds are open to the patients of any member of the King County Medical Society. The doctors in the state of Washington believe that the medical service bureaus established in the state are going to be a strong argument to oppose the establishment of state medicine. At every session of the legislature bills are introduced to carry out some kind of a state medical service. Probably in the coming session bills will be introduced as usual, but the setup of the medical service bureaus by the doctors will be a strong argument to be presented against it.

DR. YOUNG: I did not expect the men representing the service plans to be happy about my talk on the Michigan Medical Service. Do you still have the C. I. O. Grievance Committee in the Michigan Medical Service office?

DR. HAUGHEY: Yes, they do the work of men whom we had to hire otherwise to do it. They solve the problems out in the factories, and we had to have employees in the hospital do that. The Grievance Committee now does it better than we could do it.

DR. YOUNG: Is it true that, when the physicians in Flint and Pontiac published their newspaper article and dropped out, the C. I. O. passed a resolution counteracting that move?

DR. HAUGHEY: I don't know, but they took action counteracting it. I don't know about their passing a resolution. I know that the Flint doctors published things in the newspapers and they did a lot of those things, but the Flint doctors are still objecting to us, but they are taking our checks and they are doing the work.

DR. YOUNG: Did the C. I. O. use the Michigan Medical Service as a means of trying to unionize Ford?

DR. HAUGHEY: No. We had the Ford Company and we started out with around forty some thousand policies and built the number up to around seventy-two thousand policies in the Ford Company. We had an understanding with the Ford Company that they would renew when the year was up, but they sent auditors around to our office—the C. I. O. wasn't in there—this was the Ford Company that sent auditors around to our office to find out if we were making anything off of those Ford people. Well, we were, so they demanded one month's free service. We did not want to give it. The state insurance commissioner recommended that we give it because we were nonprofit. So we authorized the one month's free service. After that was authorized, Ford canceled and never came back.

DR. YOUNG: In theory a service organization is one that gives all of the medical service that the public is able to consume. I think it is a fundamentally wrong idea. It is the same as though we were to organize an insurance company which would make it possible for you to have an automobile as often as you want it. If we were to do that you would want one at least once a week because you would rather have a new one than have the old one washed. Your wife would have one that would match the color of every one of her dresses. The premium for such a plan would go up to the point where it would be impossible for you to keep it up. Now that is the fundamental principle behind a service organization. It is one that will give all of the medical service necessary. When any one starts a plan of that sort he gets into trouble. The Michigan Service did. The plan in San Diego that folded up last year did. The California Physicians Service did. When they get into trouble they modify their plan to the point where it approaches a cash indemnity plan. In Michigan they have said that their plan when it takes in people over a $2,500 limit becomes a cash indemnity plan in that the physician can charge more. Some plans attempt to limit the services so that they put brakes on their service corporation, but when you start with a service plan you always keep the evils of the service plan. If we hit a recession, pay roll deductions will stop at least in part. People will have less work to do and it will be an opportune time to get things done that they have been putting off and the Michigan Medical Service may again run in the red.

DR. HAUGHEY: No, we will not.

DR. YOUNG: This opens up the possibility. You collect a number of premiums during the month and you do a number of medical services during the month. You pay for the medical service according to a fee schedule. If you pay according to a fee schedule, it depends entirely on the number of services that are rendered in a month. If a large number of services are rendered you may find that you are unable to pay them all and that you must prorate. If you find that the number of services is small, you will have to pay fewer bills and you will build up a surplus. If you build up a surplus—and I understand that you have a surplus—some one is going to ask how about reducing premiums or increasing benefits because it is incorporated as a nonprofit organization and should not build up too much of a surplus. When you do that then you have pushed it down to the point where any fluctuation in the value of the dollar or any fluctuation in employment jeopardizes the plan. What happens if we have inflation? Your physicians may be stuck with a fee schedule that is too low. I think the plan is based primarily on an economic system where employment is stable and the value of the dollar is stable. Most serious is the fact that it is so definitely associated with the state association. If the plan fails it will justify the charge that is always made that physicians are not competent to take care of financial matters and that we should turn the administration of all of this over to a lay group. If the plan were not associated directly with the medical association and it failed, it would be of no particular consequence to any one except those involved in it. Michigan has done a lot toward meeting the needs of the public and stopping socialized medicine. I wonder if in the long run they might not be making it possible for the government to finance their failure and then take it over by that method. I think this is a very difficult thing to foresee and that there are still some loopholes in the Michigan Medical Service Plan.

DR. HAUGHEY: We shall not fold up when we have a depression. Those people have to keep on paying their service charges, their monthly instalments, and those fellows will all promptly go on to the unemployment compensation rolls, and in order to be on the unemployment compensation rolls they must not be in the hospital. They must be ready to work, so they cannot come for any more surgical benefits if they are on unemployment compensation, which they all go on as soon as they get laid off. Our insurance commissioner has approved our building up a reserve sufficient to carry us about five or six months, and most of these unemployment conditions do not last that long. We believe that we are safe.

(To be continued)

MEETING OF THE CALIFORNIA MEDICAL ASSOCIATION

Foreword and Resolutions Adopted by the House of Delegates of the California Medical Association in Special Session in Los Angeles on January 4, 5 and 6

To the House of Delegates of the California Medical Association:

Your Resolutions Committee submitted a preliminary report at yesterday's meeting (Jan. 5, 1945) and it will be assumed that the members of the House have in mind the general tenor of that report. At yesterday afternoon's session twenty resolutions were presented, in addition to those previously submitted, and all these your committee had to consider between last evening's hour of adjournment and this morning's meeting, which was scheduled to begin at 9 o'clock. Your Resolutions Committee remained in session until after 1 o'clock this morning, and it now submits to you this supplemental report.

Before proceeding with consideration of specific resolutions, we believe it advisable briefly to review the immediate circumstances leading up to this special meeting of the House of Delegates of the California Medical Association, so that the house may bear in mind one fundamental point, which is that the house must give a specific answer to a specific question.

Early in December 1944 His Excellency Governor Earl Warren conferred with the officers and councilors of the California Medical Association and stated to them in substance that he favored and urged the establishment by law of a system for the distribution of the costs of medical care, to be financed, if necessary, through new and additional pay roll taxes. Governor Warren stated that he had an open mind as to the details of any such system. He requested the California Medical Association to inform him of the type of tax financed medical care plan, if any, that the association would approve.

Subsequently, officers and members of the association have held informal conferences with representatives of organized labor and a representative of the California farm bureau. Representatives of labor and a representative of the farm bureau have appeared before the council and before the delegates at this special meeting of the House of Delegates. The governor of the state of California has asked of us a question. We must now proceed to answer it.

Most of the resolutions submitted by members of the house and considered by the committee contain various answers to the governor's inquiry. Your committee felt that to consider each resolution separately would involve both duplication and unnecessary prolongation of this special three day session. Therefore your committee has prepared a substitute resolution containing a specific answer to the question that has been propounded to the association. The resolution proposes a plan for state assistance in the solution of the problem of the distribution of the costs of medical care, but it does not contain any acceptance, direct or indirect, of the basic provisions of any known compulsory health insurance system.

Your committee recommends that this house of delegates express its appreciation of the sincerity of purpose of the governor and the representatives of labor and of agriculture in their proposals looking toward a solution of the problems before us. We recognize with gratification that an important forward step has been taken in the furtherance of mutual understanding and cooperation between the California Medical Association and the leaders of the public its members serve. It is our earnest desire to seek the continued advice and cooperation of all parties having interests in the solution of our mutual problems.

Your committee now submits the following resolution:

Resolved, That the California Medical Association is of the firm conviction that no fundamental and revolutionary change in the practice of medicine should be made under present wartime conditions. If disruption occurs in the rendering of medical service, the result can well be a catastrophe for the people of the state. That major disruption would occur if health insurance were made compulsory by the state is self evident, regardless of approval or disapproval by the doctors of a new system in principle. This is true for two reasons: The doctors remaining in civilian practice after over 3,000, or approximately one third, have gone into military service are barely able now to provide medical service for a greatly expanded population and greatly expanded industry and they do

it by working to or beyond the limit of sustained endurance. If, now, they are forced to go through a period of change to a new and unfamiliar system of practice, medical service to the people will break down. This is not theory. We know from experience with California Physicians' Service that the process of educating doctors and patients, to say nothing of administrators, to operate under an unfamiliar system is not accomplished overnight.

Furthermore, from experience of California Physicians' Service, in the war housing projects where a full coverage plan was in operation it was found that the demand for service was vastly increased under a complete prepayment system—in fact as much as doubled. Without arguing how much increased service is or is not desirable, the plain fact is that the doctors are doing all they can now, and a large increase in demand for service will with absolute certainty break down medical care in California; and be it further

Resolved, That the California Medical Association cannot endorse any system of compulsory health insurance which has thus far come to its attention; and be it further

Resolved, That the California Medical Association is equally convinced that there is an existing problem with respect to the distribution of the costs of health services, and therefore its position with respect to such problems must continue to be a positive and progressive one; and be it further

Resolved, That as such a positive and progressive step toward the ultimate solution of the problem, the House of Delegates of the California Medical Association hereby proposes the following program, which it believes to be both desirable and feasible under all existing circumstances:

(*a*) An increase in the benefits of the California Unemployment Insurance Act, without increasing payroll taxes, to provide cash indemnities to wage earners when ill or injured through nonindustrial causes. Such cash indemnities would be primarily used for the payment in whole or in part of incurred hospitalization costs. This proposal is feasible because the present California unemployment benefits and the estimated cost of adding cash indemnities can well be financed within the existing unemployment tax structure.

(*b*) The California Medical Association is wholeheartedly in favor of the principle of distribution of the costs of medical care by means of prepayment, and its sincerity in this regard is evidenced by its expenditure of no inconsiderable money and effort for the development of California Physicians' Service and that California Physicians' Service has been offering to the public a statewide, nonprofit prepayment plan for the past five and a half years.

The California Medical Association respectfully insists that it is not an informed statement to characterize California Physicians' Service as a "failure because it covers only about 125,000 people." A brief review of its enrolment experience presents a fairer picture of its present status and future prospects. After its administrative organization was ready to operate in 1939, it took three weeks to enroll the first ten members. Rate of enrolment in its first four years averaged about 1,000 per month. Now, with its more advanced "seasoning," with improvement in compensation to doctors, with better public knowledge of and confidence in it, rate of enrolment of new members has risen to approximately 12,000 per month in the last four months of 1944. If it is fair to judge the future by past experience, California Physicians' Service is, just at this time, entering on a period of very rapidly increasing expansion.

The California Medical Association respectfully insists that, instead of characterizing California Physicians' Service as a failure because it covers as yet an insufficient number of people, the state government, management, labor and agriculture should implement and assist California Physicians' Service to attain its objectives.

Such assistance could well be a reduction of the employees' portion of the California unemployment tax for those employees who have joined California Physicians' Service or any other equivalent service. To illustrate this proposal: Under it, an employee enrolling in California Physicians' Service (or in one of the Blue Cross plans) would have a smaller sum deducted from his pay check each month than he would if he failed to join. The amount of this reduction would be small, but its smallness is not important because the existence of any incentive will unquestionably act as a tremendous aid to the growth of voluntary nonprofit plans. It may be claimed that this cannot be done without increasing existing taxes. Therefore the following information is of importance. The present California unemployment tax consists of 3.7 per cent of all payrolls, 2.7 per cent paid by the employer, 1 per cent paid by the employee. This tax fund is collected under the present law for the sole purpose of paying cash benefits to people unemployed through loss of work. Since the inception of the California unemployment system, the benefits paid out have been less than one third of the amount of the taxes collected. Even in prewar years the benefits paid out averaged not over half the taxes collected. Therefore it is apparent that a tax reduction to encourage medical coverage can be added to the Unemployment Act without jeopardizing the solvency of the fund and without adding to the tax burden. California is in an advantageous position in this regard because it is one of the few states that impose a 1 per cent unemployment tax on employees in addition to the 2.7 per cent employers' tax. It is this 1 per cent which has resulted in the California fund becoming extremely large and further results in the feasibility of our suggested plan. For instance, the present surplus is $621,708,167.89.

(*c*) A more rigid enforcement by the state of the various existing disease preventive measures and other public health laws should be undertaken. By this means, already at the command of the state, great strides can be made toward the reduction of the incidence of illness and disease. It must not be forgotten that all reductions in the incidence of illness decrease the cost of medical care. Better enforcement of existing preventive measures relating to tuberculosis, contagious diseases and, specifically, venereal diseases would reduce the incidence of these diseases and illustrate this point; and be it further

Resolved, That recent proposals to establish some form of compulsory health insurance in this state have come at the last minute without any opportunity for adequate consideration and planning by any of the many interested groups or sufficient time for interchange of opinions and knowledge. Very considerable progress has been made in defining objectives in recent meetings between representatives of the medical profession with the governor and other groups, and it is the belief of your committee that such meeting and further exchange of ideas should be undertaken immediately and continued until a definite conclusion has been reached.

I move the adoption of this resolution as a whole.

It is further suggested that the California Medical Association specifically and immediately invite representatives of the government of the state of California, representatives of business and management interests, representatives of labor, representatives of agricultural organizations, representatives of the dental profession, representatives of hospitals and representatives of allied medical groups to joint conferences for the purpose of arriving at a complete and comprehensive plan to cover the entire problem of health service in California.

I move the adoption of this section of the committee's report.

During the deliberations of the committee, and from the study of the resolutions submitted, the committee has formulated certain basic principles that are inherent in the success of every prepayment plan of health service. These principles are fundamental. They may be enumerated as follows:

1. Absolute freedom of choice of physicians by the patient must be guaranteed.
2. Payments for service rendered must be on the basis of fee for service as opposed to capitation, in payment of the physician.
3. Unhampered medical control of all professional service.

I move the adoption of this section of the committees' report.

Medical Legislation

DISTRICT OF COLUMBIA

Bills Introduced.—S. 127, introduced by Senator Bilbo, Mississippi, and H. R. 317, introduced, by request, by Representative Randolph, West Virginia, propose to amend existing law relating to the registration of births in the District of Columbia. S. 223, introduced by Senator Radcliffe, Maryland, for Senator Tydings, Maryland, provides for the establishment of a modern, adequate and efficient hospital center in the District of Columbia.

MEDICAL BILLS IN CONGRESS

Bills Introduced.—S. 191, introduced by Senator Hill, Alabama, for himself and Senator Burton, Ohio, proposes an appropriation of $110,000,000 to aid states in surveying their hospital and public health centers and in planning and constructing additional facilities. H. R. 1391, introduced by Representative Miller, Nebraska, proposes to establish a Department of National Health. H. R. 1284, introduced by Representative May, Kentucky, proposes to insure adequate medical care for the armed forces by providing for the registration, selection and induction of nurses. S. 190, introduced by Senator Murray, Montana, proposes to establish a National Institute of Dental Research in the United States Public Health Service to foster and aid in coordinating research relating to dental diseases and conditions. S. 178, introduced by Senator Murdock, Utah, proposes to amend the United States Employees' Compensation Act to permit chiropractors to treat beneficiaries of that act. H. R. 713, introduced by representative Dickstein, New York, proposes to create in each corps area of the United States, as now constituted, a medical training school for the armed forces and the United States Public Health Service. H. R. 1120, introduced by Representative Murdock, Arizona, proposes that for pension purposes any person who served under contract with the War Department as acting assistant or contract surgeon between April 21, 1898 and Feb. 2, 1901 shall be considered to have been in the active military service of the United States for the period of such contract service between those dates. H. R. 590, introduced by Representative Somers, New York, proposes an appropriation of $1,500,000 to construct a veterans' hospital in the borough of Brooklyn, city of New York, with a capacity of at least 500 beds. H. R. 611, introduced by Representative Tolan, California, provides for grants to states

for assistance in the rehabilitation of disabled persons incapacitated for normal employment. H. R. 680, introduced by Representative Beckworth, Texas, proposes to amend the Social Security Act so as to provide grants to states for assistance to needy incapacitated individuals. H. R. 686, introduced by Representative Bloom, New York, proposes to amend the Federal Food, Drug and Cosmetic Act so as to declare a drug misbranded if it contains any quantity of boric acid or of any other substance which is poisonous when used internally and which is similar in appearance to another drug which is for use internally, unless it bears a label containing the statement "Warning—Poisonous If Used Internally." H. R. 1210, introduced by Representative Walter, Pennsylvania, proposes an appropriation of $1,500,000 to construct a veterans' hospital in Pennsylvania, with a capacity of at least 400 beds.

STATE MEDICAL LEGISLATION

Indiana

Bill Introduced.—S. 3, to supplement the medical practice act, authorizes for the duration of the war and eighteen months thereafter the issuance of a license without examination to any person honorably discharged from the armed forces who is a resident of the state, who subsequent to Dec. 7, 1941 graduated from an accredited medical school, who entered the armed forces before being licensed to practice medicine and who while in the armed forces practiced medicine.

Iowa

Bill Introduced.—H. 15 proposes so to amend the narcotic drug act as to include within its purview isonipecaine, which is defined as "the substance identified chemically as 1-methyl-4-phenyl-piperidine-4 carboxylic acid ethel ester, or any salt thereof, by whatever trade name identified."

Maryland

Bills Introduced.—S. 61, to amend the law requiring any physician, pharmacist, dentist, hospital or nurse in Montgomery, Talbot, Somerset and Worcester counties treating any person injured in an automobile accident or by a lethal weapon to report the fact to an appropriate police authority, proposes to make the requirement statewide. H. 60 proposes to authorize the state board of health to provide without charge for the treatment of persons exposed to hydrophobia. The present law authorizes such treatment without charge only for those who are unable to pay the usual charges.

Massachusetts

Bills Introduced.—S. 54 proposes to require a physician subsequent to the performance of an operation to deliver to the patient, or if a minor or an incompetent to the appropriate guardian, a written statement setting forth the nature of the operation performed and the physician's reasons for considering the operation necessary. S. 69 proposes to enact a separate chiropractic practice act and to create an independent board of registration of chiropractors to examine and license applicants for licenses to practice chiropractic. The bill proposes to define the practice of chiropractic as "the science of locating, and removing, by hand only, interference with the transmission or expression of nerve force in the human body, where such interference is indicated or misalignment or subluxations of the vertebral column appear. It excludes operative surgery, prescription or use of drugs or medicine, or the practice of obstetrics, except that the x-ray may be used solely for the purposes of examination." S. 113 proposes to require every licensed physician annually to submit to an examination and test for syphilis and to display in his office a certificate stating the date and result of the last examination and test to which he submitted. H. 149 proposes to authorize, on the written application of a licensed physician, the admittance to North Reading State Sanatorium of a child suffering from rheumatic heart disease. H. 261 proposes to enact a law providing for a so-called voluntary system for the payment of cash sickness, bodily injury, hospital, surgical operation and maternity benefits. The bill proposes that every person employed in a private industry shall be eligible, unless he elects otherwise, to receive the benefits indicated above from his employer and the employer must arrange for the payment of such benefits either by taking out an acceptable insurance policy or out of his own funds. H. 294 proposes to direct the department of mental health to construct and maintain an additional hospital for feebleminded children. H. 322, to amend the workmen's compensation act, proposes to require an employer to furnish to an injured employee, where necessary, glasses, artificial hearing devices and artificial dentures. H. 331 proposes to require a physician treating a patient suffering from cancer, sarcoma, leukemia, primary tumors of the lymph nodes commonly classed as malignant lymphoma, or other malignant tumor to report to the department of public health the facts within one month after first obtaining knowledge thereof. H. 412 proposes to prohibit the sale, except on the written prescription of a licensed physician, dentist or veterinarian, of aminopyrine, barbituric acid, cinchophen, dinitrophenol, sulfanilamide and any other drug which has been found under the provisions of the federal food, drug and cosmetic act to be dangerous to health when used in the dosage or with the frequency or duration suggested in its labeling. H. 414 proposes, in effect, to authorize a chiropodist or podiatrist to have in his possession any instrument adapted for the use of narcotic drugs by subcutaneous injection. H. 415, to amend the medical practice act, proposes that any applicant failing to pass an examination for licensure shall be permitted to take only two reexaminations and shall be required to pay an additional fee of three dollars for each reexamination. H. 416, to amend the medical practice act, proposes to authorize the board of registration in medicine in its discretion before issuing any certificate that has been revoked to require the physician concerned to pass a written examination to test his present fitness to practice.

Michigan

Bill Introduced.—S. 6 proposes to authorize two or more cities, townships or incorporated villages or any combination thereof to incorporate a hospital authority for operating a community hospital.

New York

Bills Introduced.—S. 2 proposes to continue until Feb. 15, 1946 the temporary state commission heretofore authorized to survey the general question of medical care and to report its findings and recommendations to the legislature. The bill further proposes to enlarge that commission to twelve persons, six of whom are to be licensed physicians, two laymen, one hospital administrator, one hospital nurse and one public health nurse. S. 60, to amend the medical practice act, proposes to authorize the board of regents to restore a license revoked because the holder thereof was convicted of a felony if the convicted physician receives a certificate of good conduct granted by the board of parole.

Oklahoma

Bill Introduced.—H. 7 proposes to condition the issuance of a license to marry on the presentation by each party to the proposed marriage of a certificate from a licensed physician that within thirty days prior to the application for a license to marry the party has been given a standard serologic examination for syphilis and that in the opinion of the physician he or she is not infected with syphilis or, if infected, is not in a stage that may be communicable to the prospective marital partner.

Society Proceedings

COMING MEETINGS

Annual Congress on Industrial Health, Chicago, Feb. 13-15. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Feb. 12-13. Dr. Victor Johnson, 535 N. Dearborn St., Chicago, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Feb. 27-March 1. Dr. Warren W. Furey, 30 N. Michigan Blvd., Chicago 2, Secretary.

Midwest Conference on Rehabilitation, Chicago, Feb. 12. Dr. Henry T. Ricketts, University of Chicago, Chicago, Chairman Committee on Arrangements.

Society of Surgeons of New Jersey, Jersey City, January 31. Dr. Walter B. Mount, 21 Plymouth St., Montclair, N. J., Secretary.

Western Section, American Laryngological, Rhinological and Otological Society, Los Angeles, January 27-28. Dr. Aubrey G. Rawlins, 384 Post St., San Francisco, Chairman.

Washington Letter

(From a Special Correspondent)

Jan. 15, 1945.

President Asks National Service Law

Enactment of a National Service Law to meet the manpower crisis was advocated by President Roosevelt in his annual message, read to a joint session of the House and Senate. He asked specifically for speedy passage of legislation to induct nurses and the four million 4-F men. He also urged extended social security, health and education programs. In his domestic program he emphasized (1) adoption of universal military training after the war; (2) full employment after the war, with greatest possible use of private enterprise to provide his promised 60,000,000 jobs; (3) assurance of chances for new small enterprises and business expansion with government guaranteed financing; (4) development of national resources and a large public works program as part of the full employment project; (5) provision of better housing with cooperation of industry, labor and federal, state and local governments; (6) expanded social security health and education programs, and (7) peacetime revision of the present tax structure "to encourage private demand."

Gas "Prescriptions" Used in Capital

So serious is the shortage of gasoline in Washington that certain service stations have been designated specifically to serve only doctors and nurses, who can get gas on submission of their signed "prescriptions." This procedure follows in part recommendations, made when the shortage reached a critical stage, by District of Columbia Coroner A. Magruder McDonald, executive member of the District Medical Society, who called on government officials to (1) earmark part of the city's gasoline allocation for exclusive consumption by doctors, (2) designate certain stations as distributors of this gas and (3) arrange for physicians to get preferential treatment at all stations, including provisions for the purchase of gas at specified hours both day and night. Doctors reported that patients went untreated when they were unable to make calls through lack of transportation.

Thirty-Nine Million Americans Under Social Security Insurance

Acting Federal Security Administrator Watson B. Miller has announced that more than 39,000,000 American men and women have entered 1945 with insured status in the old age and survivors insurance program of the Social Security Act. Under the old age and survivors insurance program, the monthly benefit rolls rose to 1,120,000 men, women and children, eligible to receive $20,500,000 monthly. Monthly benefit payments were awarded to 324,000 new applicants last year, and lump sum benefit payments were made to 208,000 survivors of insured workers who left no one immediately entitled to monthly benefits. Estimated totals certified for 1944 were $196,100,000 in monthly benefits and $22,400,000 in lump sums.

Scientific Roster Helps Medical World

The National Roster of Scientific and Specialized Personnel, which according to Paul V. McNutt, chairman of the War Manpower Commission, has placed approximately 50,000 persons since its founding in June 1940, has been of inestimable help in the medical field, it is revealed here. An example: One company engaged in research on penicillin asked for a mycologist who was a specialist in fungus growth that might prove to be sources of this medicine and other drugs needed for treatment of war wounds. The roster made an intensive search of its records and obtained the employee by the transfer system. Mr. McNutt said that the medical profession had cooperated closely with the Roster.

Induction of "Remediable" 4-Fs Proposed

A conference of interested governmental agencies to study the possibilities of rehabilitating 750,000 4-F draft registrants for military service has been proposed by Senator Claude Pepper, Democrat of Florida, chairman of the Senate Subcommittee on Wartime Health and Education. He suggested three courses: (1) induction of unessentially employed 4-Fs with remediable defects for corrective treatment at government expense under the Selective Service Administration; (2) expansion, if feasible, of the Army's rehabilitation program; (3) expansion of state rehabilitation programs now operated with federal aid under the Barden-La Follette act. Senator Pepper said that testimony before his subcommittee showed that one sixth of the 4,500,000 4-Fs could be made fit for active service.

Two UNRRA Sanitary Conventions Signed

Two international sanitary conventions facilitating operations of the United Nations Relief and Rehabilitation Administration were signed in Washington this week by Lord Halifax, British ambassador to the United States, Professor André Mayer, medical counselor of the French Provisional Government in the United States, Secretary of State Stettinius, Jan Ciechanowski, Polish ambassador, and Herbert H. Lehman, director general of UNRRA. The conventions concern maritime and aerial travel. They amend the international maritime sanitary convention signed in Paris in 1926 and the international sanitary convention for aerial navigation signed at The Hague in 1933.

Twenty-Eight Million Army Bandages Sold as Dusters

Twenty-eight million U. S. Army first aid dressings were offered for sale by the Treasury Department for use as dust cloths, although the bandages, wrapped separately in containers, are as good as new. The army surgeon general's department explained that the bandages do not conform in size and type with dressings now deemed more efficient. Resale of the bandages for medical use is forbidden under terms of the sales contract, and Treasury spokesmen said they could have "such uses as dust cloths, window wipers and machinery wiping cloths."

Government Appeals for Citizen Cooperation

Uncle Sam today asked his people in this 161st week of the war to help send 10,000 urgently needed army nurses to the fighting front by volunteering as Red Cross nurse's aides and to donate 100,000 pints of blood to meet the quota being flown to wounded men in Europe and the Pacific. Drastic action is already forecast in Congress or by executive action to correct the shortage of nurses for the armed forces. If Congress is asked to legislate, nurses will probably demand that they be given military rank, with benefits enjoyed by the women's services.

Official Notes

NBC RADIO BROADCASTS

The American Medical Association and the National Broadcasting Company are presenting the twelfth consecutive season of nationwide network health broadcasts, which began January 6 and will continue through June 30. The title of the series for 1945 is Doctors Look Ahead. Included in the series are broadcasts relating to wartime and postwar developments, with special emphasis on medical progress of the present day and what it foreshadows for the nation's health in the immediate future.

Topics will be announced weekly in THE JOURNAL and monthly in *Hygeia*. Fast moving events may, however, cause last minute substitution of topics. Local newspapers should be consulted for announcements of time and stations. The program will be broadcast each Saturday at 4 p. m. Eastern War Time (3 p. m. Central, 2 p. m. Mountain and 1 p. m. Pacific War Time). When conflicts exist with local programs, rebroadcasts may be arranged at hours other than on the network schedule. The following are the topics for January:

January 20, Sulfa Drugs (Dr. Austin Smith).
January 27, Penicillin (Dr. Austin Smith).
February 3, Social Hygiene.

The broadcast will be under the supervision of the Bureau of Health Education, whose director, Dr. W. W. Bauer, will summarize each program except when other speakers are announced.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

DELAWARE

Personal.—Dr. Mary Putnam, field physician of the Wisconsin State Board of Health, has been appointed pediatrician to the Delaware State Board of Health to direct the baby clinics carried on by the board in the state each month and to handle several crippled children's clinics. Dr. Putnam succeeds Dr. Marion S. S. Dressler, resigned.

DISTRICT OF COLUMBIA

Hospital News.—Ground was broken December 18 for the new Georgetown University Hospital, which is expected to be completed in January 1946. The building will contain 400 beds and be constructed at a cost of $2,420,000. The Federal Works Agency has allotted $1,820,000 toward the cost.

New Health Council.—The Washington Metropolitan Health Council was recently created under the sponsorship of the health division of the Council of Social Agencies. One of its first activities will be a comprehensive survey of health and hospital facilities in Washington. Admiral Ross T. McIntire, Surgeon General of the Navy, is chairman of the survey committee. Dr. Herbert P. Ramsey is head of the health division of the Council of Social Agencies.

Plan to Form Diabetic Association.—The executive board of the Medical Society of the District of Columbia and the committee on public health recently adopted recommendations sent to them by a group of physicians asking for an educational and preventive medicine program for the diabetic patients in Washington. According to *Medical Annals* it is proposed that statistics from all possible sources about the diabetic in Washington be gathered preliminary to the formation of a diabetic association, the object of which would be the education of the diabetic patient, physicians, nurses, dietitians, and others interested in diabetes. When the statistical data have been analyzed, announcement will be made concerning the formation of the proposed diabetic association.

IDAHO

Society News.—The Idaho Hospital Association held its annual meeting at the Owyhee Hotel, Boise, Dec. 9, 1944, at which 22 delegates represented ten hospitals. Mrs. Helen B. Ross, St. Luke's Hospital, Boise, was elected president and Nelson Ammons, business manager of Samaritan Hospital, Nampa, was chosen secretary-treasurer.

Hospital News.—The Gooding Chamber of Commerce is sponsoring a plan to enlarge the Gooding County Hospital, proposing to increase its capacity from 16 to 40 beds. Other changes will bring the proposed cost to about $50,000.—— Funds have been collected and a site chosen for a new hospital at Jerome, to be located on the Shepherd estate on North Lincoln Avenue and to cost about $100,000, according to *Northwest Medicine*.

ILLINOIS

New Chief of Maternal and Child Hygiene.—Dr. Henrietta M. Herbolsheimer has been appointed chief of the division of maternal and child hygiene in the state department of public health, effective January 1. During the previous six months she filled this position as acting chief, after having been promoted from a staff position which she had held since May 1942 (THE JOURNAL, July 22, 1944, p. 858).

Chicago

Francis Blake to Discuss Penicillin.—Dr. Francis G. Blake, dean, professor and head of the department of medicine, Yale University School of Medicine, New Haven, will discuss "Three Years' Experience with Penicillin Therapy" at a meeting of the North Side branch of the Chicago Medical Society in the Drake Hotel, February 1.

Society of Bacteriologists.—The Society of Illinois Bacteriologists will be addressed at the Museum of Science and Industry, February 9, by:

Dr. Katharine M. Howell and Elta Knowl, B.S., Studies on Dientameba Fragilis and Its Incidence and Possible Pathogenicity.
Werner Baumgarten, Ph.D., Peoria, Ill., Microbiologic Determination of Amino Acids.
Dr. Israel Davidsohn, The Rh Factor and Its Practical Applications.

Colonel Rusk to Give Billings Lecture.—Col. Howard A. Rusk, M. C., chief, convalescent training division, Office of the Air Surgeon, will deliver the sixth Frank Billings Lecture of the Thomas Lewis Gilmer Foundation of the Institute of Medicine of Chicago in the Grand Ball Room of the Drake Hotel, February 12. His subject will be "Rehabilitation—The Challenge to American Medicine." The lecture will be a feature of the institute's midwest conference on rehabilitation.

Orthopedic Meeting.—On January 19 the Chicago Orthopaedic Society was addressed at the Palmer House by Drs. Allen F. Voshell, Baltimore, on "Some Clinical Implications Based on Internal Knee Joint Anatomy"; Le Roy C. Abbott, San Francisco, "Surgical Approaches to the Knee Joint," and Guy A. Caldwell, New Orleans, "Factors Concerned in Delayed Healing of Wounds." Other speakers on the program included Drs. James S. Speed, Memphis, Tenn., and Joseph A. Freiberg. Cincinnati.

Prevalence of Ringworm.—The Chicago Board of Health is conducting a survey to determine the number of children in Chicago affected with ringworm, because of the indications that the disease among children of all ages up to 14 seems in some places to be reaching epidemic proportions. The reports indicate that the disease has affected six times as many boys as girls. In a release to the press, Dr. Herman N. Bundesen, president of the board of health, stated that the spread of the disease is apparently associated with many factors related to the war, such as overcrowding, increased travel and neglect resulting from increased employment and responsibilities of parents. The release stated that in other communities such as New York, St. Louis, Flint, Mich., and Pittsburgh the following suggestions have been made to combat the spread of the infection, among other measures:

Routine examination of the scalp of all children, by using a special type of light which makes the disorder at once apparent.
Insistence on the wearing of a protective paper or cloth cap by the children infected until cured.
Avoidance of exposure, particularly of the back of the head, to the backs of seats much used by other children, as in all places of public assemblage.
Efficient medical treatment of every infected child until pronounced free from infection.

MASSACHUSETTS

License Revoked.—The state board of registration in medicine on November 17 revoked the license of Dr. Samuel Greenstein, Dorchester and Boston, because "of gross misconduct in the practice of his profession as shown by collusion."

Double Anniversary in Massachusetts Health.—On December 6 the Massachusetts Department of Public Health observed the seventy-fifth anniversary of its establishment and the fiftieth anniversary of the establishment of its state antitoxin laboratories. In 1869 the Massachusetts legislature passed an act to establish a state board of health, the first in America. The anniversary program includes a morning session at the Peter Bent Brigham Hospital, Boston, a buffet luncheon at the antitoxin laboratory, afternoon and evening meetings at Ford Hall and dinner at the Parker House.

Changes in Health Personnel.—Dr. George E. Perkins, Boston, has been appointed acting director of the division of venereal diseases of the Massachusetts Department of Public Health to succeed John B. Hozier, P. A. Surg., U. S. Public Health Service, who has been recalled to Washington. Dr. Perkins served as lieutenant colonel in the medical corps of the army until his retirement in November. Prior to his retirement he was a medical consultant with the rating boards under the Veterans Administration, serving in this capacity at the Bronx, New York; Atlanta, Ga., and Togus, Maine. Dr. James W. Knepp, formerly post medical inspector at Camp Edwards with the rank of lieutenant colonel in the army, has been appointed health officer of the Worcester district of the state department of health. Dr. Knepp has retired from the army.

MINNESOTA

Tenth County Accredited for Tuberculosis Control.—Jackson County is the tenth county in the state to be credited for the control of human tuberculosis. Accreditation ceremonies were held in Jackson November 16. The certification indicates that the county has met the minimum requirements of the state department of health and the Minnesota State Medical Association for the control of tuberculosis.

Directorship of Health Education Created.—D. Clare Gates, Dr.P.H., has been appointed to a newly created position of director of health education in the Minneapolis City Health Department, according to Dr. Frank J. Hill, health commissioner. Although the civil service appointment began January 1, Dr. Gates has filled the position since November 1 through a financial grant from the Hennepin County Tuberculosis Association. Dr. Gates received his degree in public health at the University of Michigan in 1937.

School of Public Health at Minnesota.—The regents of the University of Minnesota Medical School, Minneapolis, recently changed the status of the department of preventive medicine and public health to the School of Public Health. The change was made to give proper recognition to a department which has been for a number of years offering professional training in public health for physicians, engineers and nurses and more recently for health educators. The School of Public Health will continue to function as an integral part of the medical school and the university Division of Medical Sciences. A building program planned at the university eventually will include a separate unit for the School of Public Health (THE JOURNAL, January 13, p. 111). Dr. Gaylord W. Anderson, professor and head of the department of preventive medicine and public health, on leave of absence as lieutenant colonel, medical corps, Army of the United States, and chief of the division of medical intelligence, Office of the Surgeon General, has been named director of the new School of Public Health. On January 2 Dr. Haven Emerson, New York, returned to the medical school as visiting professor of public health to serve, according to present plans, for the year 1945. During the leave of Dr. Anderson, Dr. Emerson has served in a similar capacity.

NEBRASKA

New Officers of Clinical Society.—At the annual meeting of the Omaha Mid-West Clinical Society, December 11, Dr. Joseph D. McCarthy was chosen president-elect and Dr. J. Jay Keegan was installed as president. Dr. Roy W. Fouts was elected secretary and director of clinics and Dr. John M. Thomas assistant secretary.

NEW JERSEY

Unit for Children with Chronic Heart Disease.—The Hospital and Home for Crippled Children, Newark, recently opened a wing as a separate unit for the care of children crippled with heart disease.

Personal.—Clarence T. Van Meter, Ph.D., assistant professor of chemistry and physics at the school of pharmacy of the University of Pittsburgh, has become scientific director of the physiologic laboratories of Reed and Carnrick, Jersey City, according to *Science*.

Society of Surgeons.—The annual meeting of the Society of Surgeons of New Jersey will be held in Jersey City, January 31, at the Jersey City Hospital. Among the speakers will be:

Dr. Frank Bortone, Jersey City, Esophageal Diverticula.
Dr. Louis C. Lange, Weehawken, Gallstone Ileus and Internal Biliary Fistulas.
Dr. Earl J. Halligan, Jersey City, Treatment of the Remaining Common Dust Stone.
Dr. Edgar Burke, Jersey City, Case Presentations of Unusual Surgical Interest.
Dr. Edward G. Waters, Jersey City, Presacral Sympathectomy for Functional Uterine Pain—Its Selective Usefulness.
Dr. Stanley R. Woodruff, Jersey City, Surgical Treatment of Urinary Incontinence in Certain Congenital Anomalies.
Dr. Samuel A. Cosgrove and Leon C. Chesley, Ph.D., Jersey City, Management of the late Pregnancy Toxemias.
Dr. Walter B. Mount, Montclair, Certain Trends in Obstetric Forceps.

NEW YORK

William D. Coolidge Retires.—On December 31 Dr. William D. Coolidge, who has an honorary degree of doctor of medicine from the University of Zurich, retired as vice president and director of research in the General Electric Company, Schenectady. Dr. Coolidge was born in Hudson, Mass., Oct. 23, 1873. He received his B.S. from the Massachusetts Institute of Technology and his Ph.D. from the University of Leipzig in 1899. The honorary M.D. was given to him by Zurich in 1937. He is a fellow of the American Association for the Advancement of Science and an honorary member of a number of roentgen ray societies. Chauncey G. Suits, D.Sc., assistant to the director of research, has been elected a vice president of the company and has been placed in charge of the research laboratory.

New York City

University News.—Columbia University College of Physicians and Surgeons has received a grant of $14,500 from the Commonwealth Fund of New York to be applied to the study of respiratory physiology in the department of medicine.

Dr. Napier Named Visiting Professor of Tropical Medicine.—Dr. L. Everard Napier, formerly director of the School of Tropical Medicine of Calcutta, India, has been appointed visiting professor of tropical medicine at the New York University College of Medicine for the months of January and February of 1945. This has been made possible by a grant received from the Commonwealth Fund. During this time Dr. Napier will give several special lectures to the faculty and student body and will hold conferences with students.

New York Medicine.—On January 5 *New York Medicine* made its appearance, supplanting the *Journal of the Medical Society of the County of New York*. The bulletin will be published on the 5th and the 20th of each month throughout the year and will have the subtitle "Official Bulletin of the Medical Society of the County of New York." An announcement indicates that in general the editorial policy of the journal will be maintained without spectacular alteration, but it is planned to develop gradually a working editorial board representative of various aspects and institutions of medical practice.

Health in New York City.—In 1944 the general death rate for New York City was 10.3 per thousand of population as compared with 10.9 in 1943. This rate compares with the record low of 9.9 for the year 1941. The city registered its lowest maternal mortality rate in 1944 (1.8 per thousand live births) as against a rate of 2.2 for 1943. New low death rates were also recorded for tuberculosis, which totaled 3,533 deaths in 1944, appendicitis, whooping cough, automobile accidents, other accidents and suicides. The infant mortality rate showed an increase for the second consecutive year from 30.2 per thousand live births in 1943 to 31.2 in 1944. There were 7 deaths from diphtheria in 1944 as against 16 in 1943, with the total number of cases from this disease constituting an all time low mark of 242.

OHIO

The Offices of Doctors in Service.—The *Bulletin of the Toledo Academy of Medicine* recently praised the action of a number of Toledo building managers for their way of handling the offices of physicians until their return from military service. Many of the buildings are holding doctors' offices until they return from the service. In some cases offices have been locked and the equipment left intact. Some managers charge a nominal rental and others none at all. The council of the Toledo Academy of Medicine at a recent meeting voted to express its appreciation to these building managers for the splendid cooperation they have given to physicians.

New Cancer Project at Western Reserve.—With gifts of about $15,000, a new cancer research project will be launched at Western Reserve University School of Medicine, Cleveland, to investigate the curative properties of a serum evolved by Dr. Alexander A. Bogomolets, director of the institute of experimental biology and pathology in the Soviet Union. The work will be carried out under the direction of Dr. Harry Goldblatt, associate director of the institute of pathology at the medical school, who, with Enrique E. Ecker, Ph.D., professor of immunology, has been interested in the serum. Of the funds, $4,000 has been obtained from the Herbert Jules Goodman Foundation created by Mr. and Mrs. Harry Kirtz and Mr. and Mrs. Jules A. Goodman of Cleveland. Herbert Jules Goodman, Mrs. Kirtz's only child, died of cancer on Feb. 4, 1944. To the fund for this work, initiated by the Herbert Jules Goodman Foundation, the Elizabeth Severance Prentiss Foundation has added $4,000, the Field Army of the American Cancer Society is donating $3,000, the Cleveland Foundation $1,000 and the Louis D. Beaumont Trust $1,000. The Field Army plans to raise $2,000 more. Dr. Bogomolets, in his description of the serum in the *American Review of Soviet Medicine*, December 1943, claimed that the serum is effective not only against cancer but against high blood pressure and arthritis, claiming that it increases the power of the body to fight off infectious disease and promote wound healing and that it will even prolong life. Dr. Goldblatt's interest stemmed from his work on high blood pressure and his interest in cancer and Dr. Ecker because of his research in the role of blood complement in resisting infection. In a release to the press it was stated that similar work is now being conducted at the Cedars of Lebanon Hospital, Los Angeles, under the direction of Dr. Reuben K. Straus, formerly chief pathologist in the coroner's office of Cuyahoga County, Cleveland, and a former student of Dr. Goldblatt.

PENNSYLVANIA

Philip Woodbridge Joins Reading Hospital.—Dr. Philip D. Woodbridge has resigned as professor and head of the department of anesthesiology, Temple University School of Medicine and Hospital, effective January 6, to become head of the department of anesthesiology at the Reading Hospital, Reading. The new appointment was to be effective about January 16.

Philadelphia

Fifty Years of Medicine.—On January 9 the following members of the Philadelphia County Medical Society were given certificates by the Medical Society of the State of Pennsylvania testifying to the completion of fifty years in the practice of medicine:

Dr. Miriam M. Butt
Dr. Irving W. Hollingshead
Dr. Harry A. Shute
Dr. W. Hersey Thomas
Dr. Frederick J. Voss
Dr. George B. Wood
Dr. William S. Wray

These physicians, in addition to a number of others (THE JOURNAL, Dec. 30, 1944, p. 1160), were guests at a councilor district luncheon meeting at the Philadelphia County Medical Society.

Pittsburgh

Personal.—Dr. William S. McEllroy, dean of the University of Pittsburgh School of Medicine, has been appointed medical survey adviser to succeed Dr. Charles R. Reynolds, Chicago.

Frederick Fagler Named Secretary of Allegheny County.—Mr. Frederick W. Fagler on January 1 became executive secretary of the Allegheny County Medical Society. Mr. Fagler was formerly assistant sales manager of the Hotel Statler Company, Inc., and has been located for the last three years at the William Penn Hotel, Pittsburgh. He fills the vacancy that occurred when Dr. George R. Harris resigned (THE JOURNAL, Aug. 12, 1944, p. 1050).

Daniel Braun Named to Head New Department.—Dr. Daniel C. Braun, Mount Lebanon, since September 1938 medical examiner for the Pittsburgh Coal Company, has been appointed medical director of the company's newly created department of industrial medicine. The new unit was organized to provide better supervision of the health of company employees and research into medical problems peculiar to coal mining. Dr. Braun graduated at the University of Pittsburgh School of Medicine in 1937. He took postgraduate work in industrial hygiene at Pittsburgh in 1941 and the Long Island College of Medicine, Brooklyn, in 1942 and participated in special classes sponsored by the Allegheny County Medical Society the same year.

TENNESSEE

Medical School Graduates in Second Generation at Vanderbilt.—One fourth of the recent 52 graduates of Vanderbilt University School of Medicine, Nashville, were in the "Vanderbilt Tradition," 13 were second generation "Vanderbilters" and 2 of these were grandsons of Vanderbilt alumni.

WISCONSIN

Dr. William Beaumont Memorial Foundation.—A brochure on the career of Dr. William Beaumont has been released by the memorial foundation created in 1943 (THE JOURNAL, Oct. 2, 1943, p. 297) to honor the physiologist. The pages show the officers and personnel of the foundation and contain illustrations and historical material to memorialize Dr. Beaumont. The booklet is available on request to the Dr. William Beaumont Memorial Foundation, Prairie Du Chien.

Research for Penicillin.—The University of Wisconsin, Madison, is sponsoring research on penicillin in three of its departments, biochemistry, agricultural bacteriology and botany. The work is being carried out under the auspices of the Office of Production Research and Development of the War Production Board and is in addition supported by grants from various companies which produce penicillin, including the Heyden Chemical Corporation, New York, which has contributed $4,400, and Lederle Laboratories, Inc., Pearl River, N. Y., which has contributed $4,800. Funds have also been given by the Wisconsin Alumni Research Foundation, according to *Science*.

GENERAL

Special Society Election.—Dr. William G. Lennox, Children's Hospital, 300 Longwood Avenue, Boston, is president of the Association for Research in Nervous and Mental Diseases, which held its annual meeting in New York December 16. Other officers include Drs. H. Houston Merritt, Boston, and Wilder G. Penfield, Montreal, Que., vice presidents, and Thomas E. Bamford Jr., New York, secretary-treasurer. The society agreed to devote its program for its 1945 session to the subject of epilepsy and convulsive disorders.

Physician Swindled.—A physician in Newport, Ky., recently announced that he had not received delivery on an order for which he gave part payment to a so-called representative of the Manhattan Manufacturing Company, Chicago. On inquiry to the company the physician was told that it had no salesman using the name of L. H. Lancaster which appears on the receipt and that presumably the impostor was one who had been employing a similar swindle in Western states. The company states that an authorized representative would have official order books and not a blank form on which any company's name could be written.

March of Dimes.—The 1945 March of Dimes was officially opened January 14 with a special coast to coast broadcast made by Mr. Basil O'Connor, president of the National Foundation for Infantile Paralysis, and J. Harold Ryan, president, National Association of Broadcasters, and also chairman of the national radio division of the March of Dimes. The appeal for funds will be climaxed by birthday parties and other celebrations on President Roosevelt's birthday, January 30, and will conclude January 31. For the first time the initial rally of the March of Dimes drive in New York City was a national affair, the program taking place at the Rockefeller Center, January 15. Other features incident to the annual campaign for funds was a specially dramatized broadcast of the infantile paralysis epidemic in North Carolina this past summer.

Physician Wins Prize for Work on "The Doctor's Job."—Dr. Carl A. L. Binger, assistant professor of clinical medicine (psychiatry), Cornell University Medical College, New York, is the recipient of the first Norton Medical Award of $3,500 offered to encourage the writing of books on medicine and the medical profession for the layman. The title of Dr. Binger's book is "The Doctor's Job," which will be published March 26. The book undertakes to put the lay public in living touch with the medical world as it exists today. Dr. Binger graduated at Harvard Medical School, Boston, in 1914 and served for a time with the Rockefeller Institute for Medical Research. W. W. Norton & Company, sponsors of the prize, announces that a similar award is again offered for a book to be published in 1946. Further details may be obtained from the W. W. Norton & Company, Inc., Medical Award, 70 Fifth Avenue, New York 11.

Ella Sachs Plotz Foundation.—The twenty-first annual report of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation indicates that of the twenty-seven applications for grants received during the year nineteen came from the United States, the other eight coming from five different countries in Europe, Asia and South America. During its twenty-one years the foundation has made 508 grants to scientists throughout the world. Applications for grants to be held during the year 1945-1946 must be received by the executive committee before April 1945. There are no formal application blanks, but letters asking for aid must give definitely the qualifications of the investigator, an accurate description of the research, the size of the grant requested and the specific use of the money to be expended. In their requests for aid, applicants should state whether or not they have approached other foundations for financial assistance. Applications should be sent to Dr. Joseph C. Aub, Massachusetts General Hospital, Fruit Street, Boston 14.

Planned Parenthood Meeting.—"Responsibility for the Health of Tomorrow's Family" will be the theme of the twenty-fourth annual dinner meeting of the Planned Parenthood Federation of America at the Waldorf-Astoria, New York, January 24. The speakers will be Ralph C. Williams, assistant surgeon general in charge of the Bureau of Medical Services, U. S. Public Health Service; Lieut. Col. Roy R. Grinker, M. C., and Dr. Edward A. Schumann, Philadelphia. At a luncheon of other agencies January 23 "The Future of the American Family" will be the subject of a symposium at which Mrs. Franklin D. Roosevelt will be the speaker. Topics for discussion at other sessions will be "Summing Up a Year's Work," "How to Achieve Teamwork Between Board Members and Staff," "Organizing and Interpreting Planned Parenthood into Effective Action," "Applying Tested Principles in Interpreting Planned Parenthood to Professional Groups," "To the Medical Profession," "To Clergymen," "Steps Toward Increasing Negro Participation," "Interpreting Planned Parenthood to the Everyday Citizen" and "How to Obtain Financial Support to Put Our Programs into Action."

National Sanitation Foundation Organized.—The creation of the National Sanitation Foundation was announced on January 2. Henry F. Vaughan, Dr.P.H., dean of the School of Public Health of the University of Michigan, will serve as president of the new foundation, which has been chartered in Michigan with headquarters at the School of Public Health, Ann Arbor, to promote progress and betterment in environmental sanitation, health and education. The foundation will be concerned with the advancement of scientific research, experiments, demonstrations, evaluations and the practical application of new and coordinated knowledge in the field of

environmental sanitation. Studies in food sanitation and food handling technics will receive early consideration. Selected studies sponsored by colleges, universities and public health agencies and departments of federal, state and local governments will receive material aid. The work of the foundation is financed by gifts and contributions from manufacturers, distributors and other individuals and groups interested in the promotion of environmental health. The officers of the foundation, in addition to Dr. Vaughan, who is president, are Nathan Sinai, Dr.P.H., professor of hygiene and public health at the University of Michigan, vice president, and Walter F. Snyder, former chief of the bureau of sanitation of the Toledo, Ohio, health division, executive director.

National Conference on Medical Service.—"Distribution of Medical Care" will be the theme of the National Conference on Medical Service during its meeting in the Palmer House, Chicago, February 11. Dr. Chauncey L. Palmer, Pittsburgh, will deliver the presidential address on "Medicine and the National Crisis." Other speakers will be:

Walter P. Reuther, vice president, United Automobile Workers, C. I. O., Detroilt, What Labor Expects from Medicine.
Roger B. Corbett, Ph.D., executive secretary, American Farm Bureau Federation, Chicago, What the Farmer Expects from Medicine.
Harlan S. Don Carlos, manager, life, accident and group claim department, Travelers Insurance Company, Hartford, Conn., What the Insurance Man Expects from Medicine.
Hon. A. L. Miller, Washington, D. C., Congressman from Fourth District, Nebraska, The Miller Bills and Medical Legislation by Congress.
Dr. John H. Fitzgibbon, Portland, Ore., Public Relations Program of the American Medical Association.
Lieut. Col. Harold C. Leuth, M. C., Changes in Attitude of Medical Officers Toward Medical Education and Practice.

There will be an open discussion on prepayment of medical insurance plans with Dr. Creighton Barker, secretary, Connecticut State Medical Society, New Haven, acting as the moderator.

LATIN AMERICA

Health Activities in Latin America.—*Tuberculosis in Haiti.*—The *Bulletin* of the National Tuberculosis Association points out that 1,500 x-ray examinations and fluoroscopies in Haiti show that an average of 19 per cent of persons with positive skin reaction show tuberculous lesions, active or inactive. The National Antituberculosis League (THE JOURNAL, Dec. 16, 1944, p. 1042) was organized to assist in improving the situation. It is a private organization recognized by official agencies and supported by the country as a whole and by the government. In the recent first antituberculosis week $35,000 was raised by popular subscription, which helped defray the new $32,000 100 bed sanatorium, for which twelve doctors and ten nurses have been trained to work there and in the clinics.

Personal.—Reuben L. Kahn, Sc.D., Ann Arbor, Mich., discoverer of the Kahn test for syphilis, announced to the press in Puerto Rico recently that he is working on a new test that seeks to discover latent malaria in soldiers in tropical war zones that may prevent their being returned home with the disease undetected. Dr. Kahn also disclosed that he is in Puerto Rico to aid health officers in one of the problems that obstruct work toward suppression of venereal disease. Dr. Kahn will be in Puerto Rico several days through the cooperation of the Anglo-American Caribbean Commission.——Dr. Emmanuel Dias of the Instituto Oswaldo Cruz, Rio de Janeiro, is in charge of the first experimental station for the prevention of Chagas' disease in South America. The station is in Banbui, west of Minas Gerais. In the six months during which the station has been operating, nearly 15,000 triatomes have been captured or killed. *Tropical Medicine News* states that all kinds of insecticides are being tested and that pyrethrum and DDT seem to be the most satisfactory.

Decrease in Malaria.—Nicaraguan health authorities say the malaria index is lower this year than in the last twenty years because of the sanitation work conducted by Nicaraguan and United States health authorities, the New York *Times* reported.

FOREIGN

Nuffield Grant for Industrial Health.—The trustees of the Nuffield Foundation have offered the universities of Durham, Glasgow and Manchester grants totaling $600,000 to carry out schemes which they have submitted for the development, as soon as suitable staffs can be appointed, of teaching and research in industrial health. These grants will be spread over a ten year period.

Conway Evans Prize.—Sir Thomas Lewis, physician, University Hospital, has been awarded the Conway Evans prize by the Royal Society and the Royal College of Physicians in recognition of his contribution to medical knowledge on the normal and abnormal mechanisms of the heart and circulation of the blood. This prize, in accordance with the will of the late Dr. Conway Evans, who was medical officer for the Strand district, is awarded from time to time for scientific work of distinction. According to the *British Medical Journal* it was given first to Sir Charles S. Sherrington in 1927 and then to the late Dr. John S. Haldane in 1933 and to Sir Frederick Gowland Hopkins in 1938.

Alcohol Production in Diabetes.—A report on the investigations of Dr. Jakob W. S. Möllerström, department for metabolic research at the Wenner-Gren Institute of Stockholm, reveals that a certain amount of free alcohol is always present in the blood of a diabetic person, who is consequently more or less intoxicated. In his investigations into the different methods employed to measure the content of alcohol in the blood, which are used by the police in examining persons involved in traffic accidents, he found that two standard methods used, when applied to a case of manifest diabetes, gave figures which varied between 0.035 and 0.5 per cent. According to Dr. Möllerström the reason seems to be that the alcohol generated by the body is mostly bound to certain albumins and is therefore in part undemonstrable through analysis by the standard methods. It is known that the blood of a person with diabetes contains so-called acetone bodies, which influence the result of the alcohol analysis. The presence of such bodies can be determined by specific examination, and a certain allowance is made in cases in which they appear. Dr. Möllerström now definitely asserts that the human body can produce considerable quantities of alcohol even though such bodies are not found in the blood of the patient. The discovery appears to be a very important one, both for the treatment of diabetes and for the legislation concerning alcohol consumption in connection with traffic accidents. A person may present a percentage of alcohol which would be high enough to have him punished for abuse of alcohol, whereas in actual fact he may be suffering from diabetes.

CORRECTION

Washington Letter.—The remarks of Brig. Gen. James S. Simmons, Dr. Lewis H. Weed and other medical authorities under "Importance of Postwar Research Stressed" in the Washington Letter (THE JOURNAL, Dec. 23, 1944, p. 1093) should have been assigned to testimony before the Senate Committee on Wartime Health and Education rather than to the Kelley subcommittee.

Government Services

National Program of Maternal and Child Health Services

Dr. Martha M. Eliot, associate chief of the Children's Bureau, Department of Labor, reported on January 7 that seventy physicians and professional workers, meeting in Washington as an advisory committee to the Children's Bureau, had endorsed "a nationwide survey of personnel and facilities needed to assure health services to all mothers and children, which will be undertaken by the American Academy of Pediatrics, with the help of the Children's Bureau and the U. S. Public Health Service." Chairmen of the advisory committee were Dr. Nicholson J. Eastman, professor of obstetrics at the Johns Hopkins University School of Medicine, Baltimore, and Dr. Henry F. Helmholz, head of the pediatric section of the Mayo Clinic, Rochester, Minn. The plan would tie in closely with the postwar "health center" network recommended by the Pepper subcommittee on wartime health and education and would establish for each state statistics on distribution of children in rural and urban areas; number and distribution of pediatricians and number of general practitioners graduated since 1930; number of hospital facilities, health centers, antepartum clinics and well child conferences already established and the method and rate of pay of professional personnel in these services; number of county and district health departments; the status of public health and pediatric nursing; provisions for social services to make curative care available, and status of school health services. The advisory committee on maternal child health set up as its aim "a long-term program directed at lowering maternal and child mortality and morbidity to an irreducible minimum" and advocated "the delivery of all women in good hospitals under the care of competent physicians."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 16, 1944.

The British Medical Association and the Government Health Service

The annual representative meeting of the British Medical Association is described by the *British Medical Journal* as one of the most momentous in its history. For four days nearly 270 representatives from all parts of the British Isles discussed the government's White Paper for a comprehensive medical service for the whole population. Three hundred and seventy separate motions were debated. These all consisted of objections to various proposals in the White Paper, and in general they were carried. But those which involved rejection of the whole scheme were not carried; it was decided instead to negotiate with the government. The negotiators were to press for the best service which could be established. A comprehensive medical service should be available to all who need it, the sense of the resolutions held, but it is unnecessary for the state to provide for those who are willing and able to provide it for themselves. Every man, woman and child should be able to rely on getting all the treatment and cure that may be needed. But grave concern was expressed at the proposals to place the administration of the service under the Ministry of Health and local authorities, and a demand was made for a thorough and impartial inquiry into the proposed administrative structure. Any interference of government in the doctor-patient relationship would be resisted, the representatives declared. Local authorities were totally unsuitable for the control of medical matters, it was emphasized. In the event of the establishment of advisory councils, the meeting was in favor of a single local health service council in each administrative area representing all branches of medical and ancillary services.

Dr. H. Guy Dain, chairman of the council of the British Medical Association, summed up as follows: "During these last three days we have expressed ourselves in favor of the development of medical services. We have disapproved of the White Paper as it stands. We have preferred the service to proceed by evolution from the present national health insurance, placing first the development of the hospital system and then the extension of general practitioner services. We emphatically do not wish to be employed by local authorities. There should be no civil direction. There should be no whole time salaried service for general practitioners. We will have no clinical control." Dr. Dain asked for final approval of these conditions, and it was unanimously given.

Health of the Nation During the War

In a broadcast address Sir William Jameson, chief medical officer to the Ministry of Health, said that after five years of war he had a good story to tell. The most sensitive index of a nation's general health is probably the proportion of infants dying in their first year, Sir William stated. In the last war, he said, this index rose steadily, but during the past three years it has declined steadily and last year was the lowest on record. In the first month of life a new low death rate record was established, and for the stillborn the rate was only three fourths that of five years ago. The death rates for children up to 10 years of age were also the lowest on record last year, as was the puerperal death rate, it was reported. Finally the birth rate has been rising since 1942 and was now the highest for fifteen years. Factors in this improvement, according to Sir William, were the national milk scheme, vitamin supplements for mothers and young children and the great extension of schemes for school meals and milk in schools. Full employment and higher purchasing power in many families doubtless also played a part, as well as careful planning of the restricted food supply. We also had the advantage of the system of maternal and child welfare so steadily developed by the local authorities in the twenty years between the two wars. Some of the priorities, such as milk for mothers and children, have been given at the expense of adults. But civilians at all ages were living at least as long as they did in peacetime, and the figures included deaths due to air raids, it was emphasized.

So far we have escaped any serious epidemic during the war. We had an outbreak of influenza in November and December of last year, but it was less severe than the last peacetime epidemic of 1937. Typhoid reached a new low level, and diphtheria was fast coming under control. But there are still the two black spots tuberculosis and venereal diseases. There was an increase in the number of cases of tuberculosis, but the number of deaths from all forms was almost exactly the same as in the last prewar year of 1938, the best year we ever had. Syphilis showed an increase of 139 per cent over 1939. It is encouraging, however, the report stated, that we no longer shut our eyes to this social plague, refuse to discuss it and withhold information about its dangers. This educational program has been welcomed by the vast majority of the public. It has been launched by broadcasting, the press, films, posters and leaflets.

Red Cross Aid to Russia

Speaking at a Red Cross meeting in London, Mrs. Churchill announced that her Aid to Russia Fund now totaled $30,000,000 and that some 13,000 tons of medical supplies had been shipped. "No convoy which goes on the northern route," she said, "goes without some of our supplies."

BELGIUM

(From Our Regular Correspondent)

Dec. 15, 1944.

American-Belgian Lectures

The bonds of friendship and comradeship between American and Belgian physicians have been more and more strengthened since the arrival of the American Army. On the grounds of this mutual affection and as a result of the proposal of various colleagues (especially Colonels Bachman and Brodkin of the 15th General Hospital) to organize an international medical body, the International Committee of Military Medicine was recently appointed. The members of the committee resolved to organize medical lectures, to which all the physicians of the region are invited. The first lecture of a series was held on November 3. Colonel Bachman presided. Colonel Voncken, who is general secretary of the International Committee of Military Medicine, congratulated the committee for its organization as well as for having General Reynolds of the Service of Health of the American Army as its president. Topics of the lectures which have been held up to now are "Penicillin in War Surgery," by Colonel Brodkin; "Therapy of Shock," by Captain Lewy; "Radiotherapy in Basedow's Disease," by Professor Brull, and "Exhaustion of Soldiers After Battle," by Captain Stellar. These lectures are published in the *Bulletin International des Services de Santé des Armées.*

Gastrointestinal Ulcer in Wartime

Some gastroenterologists do not believe in a relation between the conditions created by war and an increase in the development of gastrointestinal ulcers and the aggravation of the symptoms. That this relation seems to exist is indicated by the increased frequency of the disease and the aggravation of symptoms in European countries. Dr. Dauwe in an original article and Dr. N. L. Dumont-Ruyters in an article which was published in *Le Scalpel* arrive at similar conclusions which sup-

port the existence of such a relationship. The sudden increase in the number of cases during the last six months of 1940 excludes the possibility of a progressive increase independent of conditions created by war, they say. One can affirm that these conditions brought about a great frequency in the aggravation of symptoms and an increased number of new cases, it is held. Regardless of the various pathogenic theories about ulcers, it is a fact that several complicated factors play a role when acting on favorable terrain. The authors believe that certain exogenic factors such as smoking and drinking either alcohol or coffee, which in peacetime are considered to be causal factors, are of secondary importance in wartime, during which the mental factors (nervous shock, worry from either material or moral losses) and the influence of these factors on the vagosympathetic balance are the causal factors of main importance.

Gastrointestinal ulcers in peacetime are more frequent in men than in women. However, it is pointed out that in the course of the present war the percentage of gastrointestinal ulcers has increased more in women than in men, probably because of the fact that the former are more nervous than the latter. The increase of working hours and the consequent overstrain may act indirectly on the nervous condition of the people. However, it has been found that the excess of physical work in itself does not exert a preponderant influence on the development of gastrointestinal ulcers, the incidence of which in accordance with the age of the patients has been almost invariable from 1939 to 1942. It is also held possible that hypoalimentation may have an unfavorable local effect on the gastrointestinal mucosa and aid the development of ulcers: the diminution of the number of meals, incomplete diets and the restricted consumption of fats and proteins accelerate evacuation of the stomach. A quicker evacuation of food from the stomach results in a prolonged period of fasting, it is pointed out, during which the gastric mucosa may be injured by hunger contractions on a fasting stomach with hypersecretion. It is also possible that the lowering of nutrition may be an indirect causal factor in ulcer by diminishing the local resistance of gastrointestinal tissues, it is believed.

MOSCOW

(From a Special Correspondent by Cable)

Dec. 30, 1944.

Restoration of the Dniepropetrovsk Medical Institute

The Dniepropetrovsk Medical Institute was founded in 1917 on the basis of higher medical education for women and was organized in Ekaterinoslav (now Dniepropetrovsk) in 1916. During the period of socialist reconstruction from 1925 to 1930 the institute was considerably enlarged, apparatus and other equipment were purchased and the general library was organized. The number of students increased from 450 to 1,807 in 1930. Before the outbreak of the present war the institute had 3,275 students. By the twenty-fifth anniversary of its existence the Dniepropetrovsk Medical Institute had given the country 6,448 doctors, 248 teachers, 82 assistant professors and 21 professors.

On Aug. 14, 1941, when the German armies were approaching the city, the institute was moved to Stavropol, but the German offensive in the northern Caucasus in the autumn of 1942 made it impossible to evacuate in organized fashion to the East. Equipment which was not damaged was packed in cases for transportation but had to be left in Stavropol. Many professors, assistant professors, teachers, employees and their families were caught by the Germans and forced to return to the city.

Many members of the staff were soon after shot and killed by the Germans in their "death wagons." Among those who perished were Professors Brikker, oncologist, Brailovsky, psychiatrist, Bezchinskaya, roentgenologist, Shvartsman, therapist and inventor, Zamkovsky, ophthalmologist, Berg, microbiologist, and some eighty-five other scientific workers and their families.

In far Ferghana in Uzbekistan students, teachers and professors merged with the Fourth Moscow Medical Institute and worked in this fashion until August 1943. After the liberation of the northern Caucasus the basic personnel of the Dniepropetrovsk Medical Institute returned to Stavropol and, after the liberation of Dniepropetrovsk, to their native city, where restoration work was begun. Destruction and damage caused by the invaders were fantastic: the new five story building of the morphologic section lay in ruins, as well as one dormitory and new clinic hospital; buildings of the section on hygiene, the largest dormitory and the administration building were partially wrecked. In the remaining buildings the inner walls had been torn down, and buildings were turned into stables and garages. All furniture and other equipment disappeared. Students and teachers began the work of restoration by clearing away rubble from buildings and making small repairs on the remaining premises. Professors and lecturers found boards and tools and began to manufacture tables and chairs, repair cupboards and carry out other building work. A number of departments were equipped with furnishings brought in the evacuation. The books, which were scattered through the town, were collected in one place and connections were established with various clinics of the city.

The new school year was begun, according to schedule, October 1. At that time some 1,800 students who had applied for the first course had been examined, 600 being accepted by each of three faculties. In addition 7,020 persons who had been students at the institute before the war were enrolled in senior courses. Personnel and students of the institute had to overcome many difficulties. Heads of departments returning from the evacuation found their apartments wrecked and looted and were forced to take up residence with their families in the dormitories, one room being assigned to a family. Under such conditions, deprived of their books and of most essential comforts, five of the scientific workers resumed their activities. Students from other cities were housed at the beginning in dormitories with hardly any glass in the windows and without electric lights. Not all classrooms had been furnished with desks and chairs at the beginning of the school year, and students had to stand during lectures. However, in spite of all these trials and hardships the institute grew considerably between December 1943 and October 1944. The premises are being put in order gradually; the library is being replenished; living conditions are improving; but a great deal of work still remains to be done before the institute can return to its prewar status.

Marriages

William L. Sharp to Miss Jean Montgomery, both of Anderson, Ind., at Camp Maxey, Texas, September 2.

James Jackson Hutson, Charleston, S. C., to Miss Miriam Poe Hickman of Wilmington, N. C., November 10.

Harry Richard Ryan Jr., Rutland, Vt., to Miss Dansy Paulina Rawls of Dublin, Ga., November 18.

Francis M. Burke, Coleman, Texas, to Miss Ruth Pettus of Berkeley, Calif., at Dallas, September 15.

Charles B. Hanna, Charleston, S. C., to Miss Lena Mae Bryant of Nichols, S. C., September 19.

Lynwood Earl Williams to Miss Dorothy Dean Wells, both of Kinston, N. C., November 25.

Charles G. H. Menges, York, Pa., to Miss Betty G. Cook of Lock Haven, October 7.

William N. Horst, Crown Point, Ind., to Miss Jean Mason of Chicago, October 16.

Paul William Spear, Baltimore, to Miss Belle Kazan of New York, June 30.

Deaths

M. James Fine ✠ Newark, N. J.; University of Maryland School of Medicine, Baltimore, 1910; member of the American College of Chest Physicians; served during World War I; major, medical reserve corps, U. S. Army, not on active duty; for many years director of the tuberculosis bureau of the Newark Health Department; consulting physician of the tuberculosis division, state health department; examining physician for the National Jewish Hospital, Denver; chief of the tuberculosis service at the City Hospital; tuberculosis consultant for Newark Beth Israel Hospital; on the staff of the Essex Mountain Sanatorium, Verona; consulting and examining physician for the Deborah Sanatorium, Browns Mills; medical consultant to the rehabilitation clinics of the state department of labor; physician to the Essex County Juvenile Court; died December 17, aged 60, of heart disease.

George Monroe Brown Bradshaw ✠ Panama, N. Y.; Columbian University Medical Department, Washington, D. C., 1900; member of the Medical Society of the State of Pennsylvania; served as health officer of the town of Harmony and of the village of Panama since November 1933 and March 1934 respectively; formerly secretary of the board of health of Sugar Grove, Pa.; a lieutenant in the medical corps of the U. S. Army during World War I; member of the staffs of the Woman's Christian Association and the Jamestown General hospitals; died suddenly November 28, aged 80, of coronary thrombosis.

Frank DeVore Gorham ✠ St. Louis; Washington University School of Medicine, St. Louis, 1912; specialist certified by the American Board of Internal Medicine; member of the American Gastro-Enterological Association; fellow of the American College of Physicians; served overseas during World War I; member of the Selective Service Appeals Board during World War II; instructor in clinical medicine at his alma mater; on the visiting staffs of the Bethesda General Hospital, St. Luke's Hospital and the Barnes Hospital, where he died November 27, aged 56, of carcinoma of the sigmoid.

Alfred Meyer Goltman ✠ Memphis, Tenn.; Columbia University College of Physicians and Surgeons, New York, 1921; associate professor of medicine at the University of Tennessee College of Medicine; specialist certified by the American Board of Internal Medicine; member of the American Association for the Study of Allergy; fellow of the American College of Physicians; served an internship at the Mount Sinai Hospital in New York; internist to the John Gaston Hospital and the Baptist Memorial Hospital, where he died November 11, aged 49, of coronary heart disease.

Howard Chalfient Adams, Wolbach, Neb.; Rush Medical College, Chicago, 1898; died in St. Francis Hospital, Grand Island, October 30, aged 71, of coronary heart disease, arteriosclerosis and chronic asthma.

Charles Z. Candler ✠ Sylva, N. C.; Atlanta College of Physicians and Surgeons, Atlanta, Ga., 1901; senior fellow of the Southeastern Surgical Congress; life member of the American College of Surgeons; honorary member of the Medical Society of the State of North Carolina; served during World War I; served as a member of the Dillsboro and Sylva town council; for two years a member of the board of commissioners of Jackson County; founder and chief of staff, C. J. Harris Community Hospital; died December 12, aged 67, of coronary occlusion.

Mallory B. Culpepper ✠ Carlsbad, N. M.; Medical Department of Tulane University of Louisiana, New Orleans, 1894; served as president of the New Mexico Medical Society and the Eddy County Medical Society; bank president and

CAPT. HENRY BERTULL
M. C., A. U. S., 1917-1944

CAPT. GEORGE WILLIAM FLOSS
M. C., A. U. S., 1907-1944

LIEUT. CHARLES F. GOETSCH
(MC), U.S.N.R., 1911-1944

KILLED IN ACTION

Henry Bertull, Brooklyn; Cornell University Medical College, New York, 1942; served an internship at St. Vincent's Hospital in New York; commissioned a first lieutenant in the medical corps, Army of the United States, on June 10, 1942; later promoted to captain; died in France Aug. 28, 1944, aged 27, of shell fragments in the head and left shoulder received in action.

George William Floss, Swissvale, Pa.; University of Pittsburgh School of Medicine, 1932; member of the American Medical Association; served an internship at St. John's General Hospital in Pittsburgh; commissioned a first lieutenant in the medical corps, Army of the United States, on Jan. 12, 1943 and began active duty on Feb. 4, 1943; later promoted to captain; drowned in the South Pacific area Oct. 20, 1944, aged 37.

Charles Francis Goetsch, Long Island City, N. Y.; Long Island College of Medicine, Brooklyn, 1936; served an internship at St. Mary's Hospital, Brooklyn; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on July 29, 1942; promoted to lieutenant on Oct. 1, 1943; died in the Pacific area July 21, 1944 of a fragment shell wound in the abdomen, aged 33.

member of the school board; on the staffs of the Carlsbad Memorial and St. Francis hospitals; died in St. Mary of the Plains Hospital, Lubbock, Texas, October 13, aged 73, following a prostatectomy.

Rudolph Carl Engel ✠ Cleveland; University of Wooster Medical Department, Cleveland, 1902; medical director of the Republic Steel Corporation; member of the American Association of Industrial Physicians and Surgeons; on the staffs of St. Alexis and St. Luke's hospitals; died in Shaker Heights, Ohio, November 28, aged 65, of coronary thrombosis.

Israel Aaron Fine, Steubenville, Ohio; Ohio State University College of Medicine, Columbus, 1924; member of the American Medical Association; on the staffs of the Gill Memorial and Ohio Valley hospitals; died November 19, aged 44, of coronary thrombosis.

James Irion Hollingsworth, Waurika, Okla. (licensed by years of practice); member of the American Medical Association; councilor of the Fifth District of the Oklahoma State Medical Association; formerly city physician of Muskogee; for eighteen years chief surgeon for the Waurika Hospital, where he died November 30, aged 65, of duodenal ulcer.

Robert Ignatius Hubert, San Marino, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1898; formerly a member of the city health department of Los Angeles; died November 17, aged 78, of coronary thrombosis.

Frederick M. Ilgenfritz, Kalamazoo, Mich.; Detroit College of Medicine, 1903; member of the American Medical Association; medical examiner for public schools; served on the staffs of the Harper Hospital, Detroit, and the Borgess Hospital; died November 15, aged 65, of coronary thrombosis.

Jay Richard Lanning ✠ Corinth, Miss.; Memphis (Tenn.) Hospital Medical College, 1900; served in the medical corps of the U. S. Army during World War I; died in the McRae Hospital November 26, aged 72, of coronary disease and diabetes mellitus.

Elmer C. Ludlum, Carmen, Okla.; University Medical College of Kansas City, Mo., 1899; died August 24, aged 69, of coronary thrombosis.

James Roller McMurray ✠ Galveston, Texas; University of Texas School of Medicine, Galveston, 1926; formerly assistant professor of pediatrics at his alma mater; captain, medical reserve corps, U. S. Army, not on active duty; served as physician to the Lasker Home for Homeless Children; on the staff of St. Mary's Infirmary; served an internship and member of the staff of the John Sealy Hospital, where he died October 27, aged 42, of osteomyelitis of the jaw and multiple lung abscesses.

Giles C. Moorehead, Ida Grove, Iowa; State University of Iowa College of Medicine, Iowa City, 1879; member of the American Medical Association; on the staff of the Ida Grove Hospital; at one time member of the school board; died November 7, aged 88, of chronic myocarditis.

Alexander Cobb Pennington, Steens, Miss.; Chattanooga (Tenn.) Medical College, 1908; died October 1, aged 64.

MAJOR HERMAN M. LORD
M. C., A. U. S., 1911-1944

CAPT. JOHN R. MCELROY
M. C., A. U. S., 1916-1944

CAPT. BERNARD JOSEPH SABATINO
M. C., A. U. S., 1912-1944

KILLED IN ACTION

Herman McNeill Lord, Chelsea, Mich.; Wayne University College of Medicine, Detroit, 1938; member of the American Medical Association; served an internship at the Grace Hospital and a residency in obstetrics and gynecology at the Woman's Hospital, Detroit; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on Dec. 4, 1940; began active duty in the Army of the United States on Jan. 27, 1941 and was assigned to the Fitzsimons General Hospital in Denver, where he taught enlisted personnel; promoted to captain; sent to the Mayo Clinic in January 1943 for a course in internal medicine, returning to Fitzsimons for a course in hospital management; after a short period at Northington General Hospital was assigned to the 45th Field Hospital at Fort Bragg, N. C.; sent to England in February 1944; promoted to major; killed in action in Belgium Oct. 27, 1944, aged 33.

John Robert McElroy, Waterloo, Iowa; State University of Iowa College of Medicine, Iowa City, 1941; served an internship at the University of Nebraska Hospital in Omaha; commissioned a first lieutenant in the medical corps, Army of the United States, on June 27, 1941; later promoted to captain; died in the European theater of operations July 28, 1944, aged 28, of wounds received in action.

Bernard Joseph Sabatino, Baltimore; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1938; served an internship and residency at St. Joseph's Hospital; began active duty as a first lieutenant in the medical corps, Army of the United States (National Guard), Feb. 3, 1941; later promoted to captain; field hospital surgeon with the twenty-ninth division; killed in action in the European area, June 6, 1944, aged 31.

Correspondence

RABIES CONTROL

To the Editor:—I read with genuine interest your comment, November 4, concerning rabies in New York City. A program inaugurated in our city of 36,000 inhabitants, just across the border from the city of St. Louis, has yielded excellent results and it might interest other health officers. A number of communities have followed this plan and are pleased with its workings.

Briefly, we shifted the direction of animal control to the health commissioner with gratifying success, yet working in close cooperation with the police department. At one time, one of the film companies was interested but owing to the war, screen portrayal fell through. In addition it was brought to the attention of the United States Public Health Service.

I firmly believe that if the U. S. Public Health Service would sponsor national distribution of a carefully prepared film showing rabid dogs and if the film was carefully edited to bring out the health officers' essential points and emphasizing the reasons for each step, we would get it over to the children attending the picture shows and through them to their parents —the adults. If this portrayal was then followed by a well planned movie showing a puppy who later became rabid—and we have had them—playing with a child or children we would achieve a far reaching result without the necessity of portraying the demise of a child from this horrible disease. This approach would eliminate the alarm to the movie audience, so often composed largely of pregnant women, which the movie industry is anxious to avoid.

Why not clean up rabies once and for all in our nation?

WALTER R. HEWITT, M.D., University City, Mo.
Health Commissioner.

[NOTE.—Following is the plan used in University City:]

The old system wherein the dog catcher travels the streets escorted and guarded by police officers always provoked resistance. We decided to abandon the police escort, since it provoked resistance from the public. We next directed our attention to selecting a certain type of men for the animal control department. The wagon was painted black with "Animal Control" in neat letters on both sides. The men were given an official letter of authority with the University City seal stamped on it. They were dressed in dark blue uniforms and dark visor hats, and around these hats was placed a black hatband on which, in front, "Animal Control" was embossed with 1¼ inch gold letters. The quiet dignity impressed our citizens and enabled us to get away from the old badge idea, which the public likened to police officers and which provoked resistance. Men of kind disposition and smiling countenance were obtained, and they were instructed to present themselves in tailored, clean uniforms, shaven and well groomed. They were further instructed that the public would not understand the law and that they were to be salesmen and emissaries of good will. In approaching people they were to impress on them to keep calm and to talk things over with them. Should the involved party be a woman, they were instructed to raise their hats in approaching her. They were to inform the public that they were paid by the day and not by the number of dogs they caught, that we did not want their pets, that we were anxious to protect their children and their pets, and to ask their help and cooperation.

At once brawls and loud boisterous talk ceased. Less than half a dozen incidents have occurred in the last six months in carrying out this plan. In several instances dogs have been removed from the net by irate citizens, and the animal control men have been instructed to offer no resistance but to obtain the names and addresses of these persons. This matter then comes under police powers and it is usual for the police to bring the offending party into court on an arrest notice. In this connection it has been found that the payment of costs and a small fine, which may or may not be stayed, on the recommendation of the court, works well. It is far wiser than a heavy fine, which is apt to lead to an appeal to a higher court and which creates animosity, which we are attempting to avoid. At the same time a wisely placed appeal for cooperation made from the bench has been helpful and has led to the cooperation of the citizen and has avoided the development of rancor.

Our animal control men are specifically instructed that our ordinance requires all license and impounding fees be paid to our tax collector, and under no circumstances are they to touch any money. Should occasion arise at night, the police department acts for the tax collector.

Guns also are obsolete and should never be permitted. A shooting could easily wreck an entire program. We believe that it is better to allow the dog to be taken away or to escape, as by that very act one makes friends among the citizenry. It will save broken noses or litigation, and it places the burden on the citizen.

When we instituted this program, "mercy acts" were permitted and dogs were released on the citizen's signature on recommendation of our animal control department when there was justifiable reason. These little acts further ingratiated the department in the minds of the public. The citizen invariably responded by expressing appreciation and offering to cooperate with the department.

Remember, animal control is on a higher plane than dog catching and is designed to protect each of us as well as our pets from the stray that is a reservoir for rabid dogs. We believe that citizens and their pets should be treated kindly, courteously and sympathetically. This simple method has led almost to tripling the number of licenses issued. Only an occasional dog is now seen on the street at large. The number of dog bites is decreasing.

Bureau of Investigation

MISBRANDED PRODUCTS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the Federal Security Agency

[EDITORIAL NOTE.—These Notices of Judgment are issued under the Food, Drug and Cosmetic Act, and in cases in which they refer to drugs and devices they are designated D.D.N.J. and foods, F.N.J. The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the date of shipment; (4) the composition; (5) the type of nostrum; (6) the reason for the charge of misbranding, and (7) the date of issuance of the Notice of Judgment.]

Bafaline Tablets.—Bafaline Laboratories, Inc., Manchester, N. H. Shipped Jan. 7 and July 18, 1941. Composition: essentially acetylsalicylic acid and caffeine, with indications of gelsemium. One consignment was declared misbranded in that the label statements represented that the product would be effective in relieving pain, colds and discomfort resulting from various rheumatic pains, act as a restorative on the nervous system, and accomplish some other things.—*[D.D.N.J., F.D.C. 828; December 1943.]*

Brown's Nosopen.—Am-Bro Company, Lawton, Okla. Shipped Jan. 7, 1942. In two units, "No. 1 Solution" and "No. 2 Solution." Composition: No. 1 essentially ephedrine sulfate (about 1 per cent), chlorobutanol and water; No. 2, essentially ephedrine alkaloid (approximately ¾ per cent) and small amounts of volatile oils, including camphor, menthol and eucalyptus in a mineral oil base. Both bottles misbranded because they contained ephedrine but labels failed to warn that frequent or continued use might cause nervousness, restlessness and sleeplessness, and that preparations should not be taken, except on competent advice, by persons suffering from high blood pressure, heart disease, diabetes or thyroid trouble, and because the No. 2 Solution contained mineral oil, whereas its label failed to warn that frequent or excessive use might injure the lungs, and that the product should not be given to infants

and young children except on competent advice. Further misbranded because name "Nosopen" falsely suggested that preparation would open nasal passages and make breathing easier. Also misbranded because use of the words "Discomforts of Hay Fever, Asthma, Sinus-Head-Colds" was false and misleading in representing that Nosopen would be efficacious for all discomforts of the conditions named, whereas it would be effective only to lessen nasal congestion.—[*D.D.N.J., F.D.C. 811; December 1943.*]

Clearwater's Combination Medicine.—Henry P. Clearwater, trading as Pope Laboratories, Hallowell, Maine. Shipped July 18 and August 12, 1940. Three products in combination. Composition: No. 1, a pink tablet, essentially a mixture of ferrous carbonate, potassium iodide, calcium glycerophosphate, manganese dioxide, sulfur, and a compound of zinc; No. 2, a white tablet containing cascara, and No. 3, a pink compressed tablet consisting largely of aspirin and starch. Misbranded because falsely represented to be efficacious as a reconstructive systemic tonic and a treatment and preventive of rheumatism and arthritis.—[*D.D.N.J., F.D.C. 822; December 1943.*]

Ecco Hygienic Powder.—Eby Chemical Company, Harrisburg, Pa. Shipped April 13, 1942. Composition: essentially boric acid and alum, with small amounts of oxyquinoline sulfate, menthol, thymol, phenol, eucalyptol, salicylic acid and methyl salicylate. Bacteriologic tests showed that it was not germicidal in the dilution recommended for use. Misbranded because labeling falsely represented that it was a reliable contraceptive and appropriate treatment for head colds, rhinitis, rectal irritations, bleeding gums, trench mouth, abscesses, boils, hemorrhoids, leucorrhea, vaginitis, gonorrhea and many other disorders.—[*D.D.N.J., F.D.C. 830; December 1943.*]

Heilmann's Formula "99."—Frank J. Heilmann, trading as Heilmann's National Distributors, Los Angeles. Shipped August 7, 1941. Composition: essentially potassium acetate, potassium iodide, resinous matter, colchicin, alcohol and water. Misbranded because labels falsely represented that the product would act as a stimulant diuretic, benefit gouty conditions, prevent heart injury resulting from the pain, discomfort and ill effects of gouty and rheumatic conditions; would be of value in preventing many forms of rheumatism, as well as syphilitic neuralgia; prevent and immediately relieve pain, produce buoyant energy and accomplish some other things.—[*D.D.N.J., F.D.C. 826; December 1943.*]

Ironized Yeast.—Ironized Yeast Company, Inc., Atlanta, Ga. Shipped prior to Dec. 20, 1941. Composition not reported, except quotation from label: "Each tablet contains reduced iron—Iron Peptonized Haemoglobin Vitamin B Concentrate from Yeast Lager Yeast." Misbranded because labeling falsely represented that the product would be beneficial for underweight, run-down, tired and nervous people, would increase weight, vigor and appetite and dispel weariness.—[*D.D.N.J., F.D.C. 838; December 1943.*]

Neo-Sed.—Hale Drug Company, Birmingham, Ala. Shipped Jan. 7, 1942. Composition: essentially barbital (0.7 grain per fluid ounce), compounds of sodium, ammonium and potassium, bromides, benzoic acid, sugar and water. Misbranded because label did not adequately warn that frequent or continued use of product might lead to mental derangement, skin eruptions or other serious disorders, and that it should not be taken by those suffering from kidney diseases. Also misbranded because fabricated from two or more ingredients, whereas label failed to state common or usual names of these or to declare quantity of bromide present. Further misbranded because label did not accurately state the amount of contents.—[*D.D.N.J., F.D.C. 809; December 1943.*]

Old Hickory Ointment.—Old Hickory Medicine Company, Chattanooga, Tenn. Shipped May 5, 1942. Composition: essentially a mixture of zinc oxide, salicylic acid, calomel, carbolic acid, camphor, menthol and petrolatum. Misbranded because label falsely represented the product as being effective in the treatment of acne, barber's itch, tetter, dandruff, psoriasis, itching piles and some other things. Further misbranded because label failed to state the quantity or proportion of calomel, a mercury derivative, that was present.—[*D.D.N.J., F.D.C. 839; December 1943.*]

Pine Glow Bath and Rainbo Bath.—Rainbobath Laboratories, San Francisco. Shipped Feb. 16, 1942. Composition: Pine Glow Bath, essentially water, with the sodium salt of a sulfonated oil, and volatile oils, including oil of pine needles; Rainbo Bath was essentially a lime-sulfur solution. First product misbranded because falsely represented in labeling as effective in overcoming insomnia, aiding health and benefiting muscular rheumatism and gout and eliminating poisons, increasing the white corpuscles and bringing about weight reduction. Rainbo Bath misbranded because of false label representations that the product was colloidal sulfur and that when placed in the bath water would give the benefits derived from the treatments at hot springs and spas.—[*D.D.N.J., F.D.C. 836; December 1943.*]

Purola Female Pills.—McKesson & Robbins, Inc., and Blumauer-Frank Drug Company, Portland, Ore. Shipped Nov. 19, 1941. Composition: essentially laxative plant drugs, including aloes, with oil of tansy, alkaloidal material (probably derived from ergot) and iron sulfate. Misbranded because, in spite of laxative ingredients, the label did not warn that the product should not be used when abdominal pain, nausea, vomiting, or other symptoms of appendicitis are present, and that frequent or continued use might result in dependence on a laxative; further misbranded in that name "Female Pills" and directions inside box to take pills prior to "expected period" gave the false and misleading impression that the preparation would be effective in promoting the menstrual flow, whereas it would not.—[*D.D.N.J., F.D.C. 813; December 1943.*]

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Right of Discharged Army Medical Officer to Employment Held Prior to Entering Service.—Kay "entered the service" of the General Cable Corporation in July 1931 as the "medical director" of one of its plants on the basis of a "full working week" at the plant. About six months later "this was reduced to three hours a day" five days a week, although he remained "on call" by the corporation at all hours and was expected as needed to visit at their homes or at a hospital employees injured in the course of their employment. His duties were to render all necessary medical care to employees so injured, to make preemployment physical examinations and to conduct routine physical examinations of all employees. The corporation furnished him at its plant fully equipped a waiting room, dispensary, treatment room, rest room, drug room and two examination rooms. Four nurses employed by the corporation assisted him and he had no right either to hire or to discharge the nurses. He was paid a certain sum weekly without regard to the number of patients he treated or the number of hours he spent in treating employees of the corporation. From this weekly compensation the corporation "deducted payments for social security and unemployment compensation." At one time when Kay's draft board classified him as 1-A the corporation filed an affidavit for his deferment, describing him as "a regular employee." Outside the plant he maintained his own office, where he received his private patients but where also he was required to receive such employees as were sent by the company.

Kay entered the Army, served six months and was honorably discharged. The corporation refused to reinstate him in his former capacity and he brought action against it to compel his reinstatement under section 8(e) of the Selective Training and Service Act of 1940, which provides that any person who, on entering the military or naval service of the United States, has left "a position, other than a temporary position, in the employ of any employer" shall, in the case of a private employer, be restored to such position or to a position of like seniority status and pay, "unless the employer's circumstances have so changed as to make it impossible or unreasonable to do so." The trial court dismissed his action on the ground that he did not hold a position "in the employ" of the corporation, and Kay appealed to the circuit court of appeals, third circuit.

The status, said the circuit court of appeals, protected by the Selective Training and Service Act is "a position . . . in the employ of" an employer—an expression evidently chosen with care. It will be noted that the word "employee" was not used in the statute. While it may be assumed that the expression which was adopted is roughly synonymous with "employee," it unmistakably includes employees in superior positions and those whose services involve special skills, as well as ordinary laborers and mechanics. Of course, the words are not applicable to independent contractors, but, except for casual or temporary workers, who are expressly excluded, they cover almost every other kind of relationship in which one person renders regular and continuing service to another. The policy of the act is stated in section 1(b), 50 U. S. C. A. Appendix, section 301(b), to be that "the obligations and privileges of military training and service should be shared generally in accordance with a fair and just system . . ." though such declaration was hardly needed. Every consideration of fairness and justice makes it imperative that the statute should be construed as liberally as possible so that military service entail no greater setback in the private pursuit or career of the returning soldier than is unavoidable. The question here presented, therefore, is not to be solved by the application of abstract tests or formulas, but the factors which usually determine the nature of a disputed relationship must be considered in the light of the purpose which Congress intended to accomplish. Of course, the corporation could not exercise any control over the details of Kay's work

as a physician. The method of physical examination, the diagnosis and the treatment of injuries were necessarily his sole province, and if the right to dictate the manner of doing the work were the final and decisive test Kay could not be classed as an employee. However, even in cases in which the interpretation of a statute is not involved, that is by no means the only thing to be considered. In the present case the manner in which Kay was paid, the extent to which his time was at the corporation's disposal and the right of the company to discharge him at any time point to an employee status rather than that of an independent contractor. So long as he was associated with the corporation he did not have the practicing physician's freedom to choose his own patients but was bound to receive and treat every case referred to him by it. Ownership of the premises on which Kay did most of his work and of the instrumentalities used, as well as the control of his subordinates and assistants, were all in the corporation. For what it is worth, the defendant unquestionably considered him no different from any ordinary employee. It required him to punch a time clock and rewarded him with the employee's regular ten year service button, the Army and Navy E certificates and employee's bonus for enlistment. The relationship which resulted from all these various factors, viewed in the light of the purpose of the statute, is clearly a position in the employ of the corporation and is perhaps better described by that term than any other which could be found.

We agree, continued the court, with the learned judge of the district court that the circumstances of the employer did not, during the plaintiff's absence, change so as to make it unreasonable for the corporation to reengage him. The change in circumstances on which it grounded its refusal was this: In addition to his position with the corporation, the plaintiff had been engaged as physician for an employees' health association, each member of which paid a monthly premium. Kay received a certain fee per month for each member, for which he was to give the members medical treatment for ills not connected with compensable injuries, which were the subject matter of his employment with the corporation. When Kay went into the Army the health association employed another physician. On his return the association declined to reemploy him, preferring the new man. The position of the corporation is that it makes for greater efficiency and avoids some loss of the workers' time to have the same physician for both the company and the health association. There is also a faint suggestion that Kay had for some reason become unacceptable to the health association, but there is no evidence whatever of a change in his personal relations with the corporation and it is not suggested that his professional qualifications, his mental or physical ability to do the work or his personal characteristics had altered in any way, or that the corporation had any reason to believe that his services as medical director would be in any way different or less satisfactory than they were before he left. The Selective Training and Service Act says, unless the "employer's" circumstances have changed. Primarily, no doubt, this was intended to provide for cases in which necessary reduction of an employer's operating force or discontinuance of some particular department or activity would mean simply creating a useless job in order to reemploy the veteran. Without deciding whether a change in the veteran's relations with other employees or with third parties generally can ever constitute a change in the "employer's" circumstances within the meaning of the act, and assuming that the refusal of the association to reemploy him is a relevant fact, we believe that there was no change in this case which would make it unreasonable for the corporation to reengage Kay. Accepting the corporation's contention that there would be some loss of efficiency and possibly some additional expense involved, more than that is needed to justify refusal to reinstate a person within the protection of the act. In most cases it is possible to give some reason for the refusal. "Unreasonable" means more than inconvenient or undesirable. The company's argument on this point, if carried to its necessary conclusion, would defeat the main purpose of the act and limit its operation to merely capricious or arbitrary refusals. Men and women returning from military service find themselves, in countless cases, in competition for jobs with persons who have been filling them in their absence. Handicapped, as they are bound to be by prolonged absence, such competition is not part of a fair and just system, and the intention was to eliminate it as far as reasonably possible. The act intends that the employee should be restored to his position even though he has been temporarily replaced by a substitute who has been able, either by greater efficiency or by a more acceptable personality, to make it desirable for the employer to make the change a permanent one.

The court accordingly remanded the cause to the district court with instructions to enter a judgment that in effect would compel Kay's reinstatement to the position he held with the corporation prior to his entry into the Army.—*Kay v. General Cable Corporation, 144 F. (2d) 653 (1944).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and Examining Boards in Specialties were published in THE JOURNAL, January 13, page 120.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: Montgomery, June 26-28. Sec., Dr. B. F. Austin, 519 Dexter Ave., Montgomery 4.

ALASKA: Juneau, March. Sec., Dr. W. M. Whitehead, Box 561, Juneau.

ARKANSAS: * *Eclectic.* Little Rock, June 7. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Oral.* Los Angeles, Jan. 21. *Written.* Los Angeles, Feb. 27-March 2. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento 14.

CONNECTICUT: * *Homeopathic.* Derby, March 12-13. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven. *Medical. Examination.* March 13-14. *Endorsement.* March 27. Sec. to the Board, Dr. Creighton Barker, 258 Church St., New Haven.

DELAWARE: *Examination.* Dover, July 10-12. *Reciprocity.* Dover, July 17. Sec., Medical Council of Delaware, Dr. J. S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: * *Reciprocity.* Washington, March 12. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington 1.

FLORIDA:* Jacksonville, June 24-26. Sec., Dr. Harold D. Van Schaick, 2736 S. W. Seventh Ave., Miami 36.

KANSAS: Topeka, Feb. 19-20. Sec., Board of Medical Registration and Examination, 905 N. Seventh St., Kansas City 10.

KENTUCKY: Louisville, June 18-20. Sec., State Board of Health, Dr. Philip E. Blackerby, 620 S. Third St., Louisville 2.

MAINE: Portland, March 13-14. Sec., Board of Registration of Medicine, Dr. A. P. Leighton, 192 State St., Portland.

MARYLAND: Baltimore, June 19-22. Sec., Dr. J. T. O'Mara, 1215 Cathedral St., Baltimore.

MASSACHUSETTS: Boston, March 13-16. Sec., Board of Registration in Medicine, Dr. H. Q. Gallupe, 413-F State House, Boston.

MISSISSIPPI: Jackson, Feb. 9. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson 113.

MONTANA: Helena, April 2-4. Sec., Dr. O. G. Klein, First Nat'l. Bank Bldg., Helena.

NEVADA: *Endorsement.* Carson City, Feb. 5. Sec., Dr. G. H. Ross, 215 N. Carson St., Carson City.

NEW HAMPSHIRE: Concord, March 8-9. Sec., Board of Registration in Medicine, Dr. D. G. Smith, 77 Main St., Nashua.

NEW MEXICO: * Santa Fe, April 9-10. Sec., Dr. LeGrand Ward, 141 Palace Ave., Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 29-Feb. 1. Chief, Mr. H. L. Field, Education Bldg., Albany.

OHIO: Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OREGON: * Portland, Jan. 24-27. Exec. Sec., Miss L. M. Conlee, 608 Failing Bldg., Portland 4.

PENNSYLVANIA: April 10-13. Act. Sec., Bureau of Professional Licensing, Department of Public Instruction, Mrs. M. G. Steiner, 358 Education Bldg., Harrisburg.

SOUTH CAROLINA: Columbia, June 25-27. Sec., Dr. N. B. Heyward, 1329 Blandina St., Columbia.

VERMONT: Burlington, June. Sec., Dr. F. J. Lawliss, Richford.

VIRGINIA: * Richmond, June 20-23. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WEST VIRGINIA: Charleston, Feb. 26-28. Commissioner, Public Health Council, Dr. John E. Offner, State Capitol, Charleston 5.

WYOMING: Cheyenne, Feb. 5-6. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

CONNECTICUT: Feb. 10. Address State Board of Healing Arts, 250 Church St., New Haven 10.

DISTRICT OF COLUMBIA: Washington, April 23-24. Sec., Commission on Licensure, Dr. G. C. Ruhland, 6150 E. Municipal Bldg., Washington 1.

FLORIDA: DeLand, June 1. Sec., Dr. J. F. Conn, John B. Stetson University, DeLand.

NEW MEXICO: Santa Fe, Feb. 12. Sec., Miss Marion M. Rhea, State Capitol, Santa Fe.

OREGON: Portland, March 3. Sec., Board of Higher Education, Mr. C. D. Byrne, University of Oregon, Eugene.

RHODE ISLAND: Providence, Feb. 14. Chief, Division of Examiners, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

14:109-123 (Nov.) 1944

Psychiatric Problems in Flying Personnel. W. O. Klingman.—p. 109.
Renal Complications of Sulfonamide Therapy. K. E. Luckie.—p. 114.
Rabies. H. N. Johnson.—p. 119.
Uterine Hemorrhage in Pregnancy and Puerperium. J. Watson.—p. 122.

American Journal Digestive Diseases, Fort Wayne, Ind.

11:345-376 (Nov.) 1944

Observations on Possible Pathogenicity of Paracolon Bacilli as Incitants of Diarrheal Diseases in Infants and Children. E. R. Neter and Phyllis Clark.—p. 356.
Caecum (Typhlon) with Ascending Colon and Part of Transverse Colon Considered as Chamber: Superior Colic Ventriculus (Holotyphlon). T. H. Evans.—p. 360.
Why Failures in Treatment of Allergy. J. A. Turnbull.—p. 363.
Nutritional Basis of Nervous Disorders in Children. I. N. Kugelmass.—p. 368.

Annals of Surgery, Philadelphia

120:417-688 (Oct.) 1944. **Partial Index**

Repair of Surface Defects of Foot. J. B. Brown and B. Cannon.—p. 417.
Refrigerated Skin Grafts. J. P. Webster.—p. 431.
Skin Graft Fixation by Plasma-Thrombin Adhesion. F. Young.—p. 450.
*Influence of Sulfonamides on Postoperative Complications. J. E. Rhoads and I. S. Ravdin.—p. 463.
*Chronic Constrictive Pericarditis: Partial Pericardiectomy and Epicardiolysis in 24 Cases. S. W. Harrington.—p. 468.
Problem of Embolism of Pulmonary Artery. H. Neuhof.—p. 488.
Effect of Sulfonamides on Experimental Gunshot Wounds Involving Peripheral Nerves. L. Davis, F. Hiller, G. Perret and W. Carroll.—p. 494.
Thiouracil in Preparation of Thyrotoxic Patients for Surgery. H. M. Clute and R. H. Williams.—p. 504.
*Relationship of Protein Deficiency to Surgical Infection. P. R. Cannon, R. W. Wissler, R. L. Woolridge and E. P. Benditt.—p. 514.
Emergency Gastrectomy for Acute Perforation of Carcinoma of Stomach, with Diffuse Soiling of Free Peritoneal Cavity. J. D. Bisgard.—p. 526.
Complications and Mortality in Subtotal Gastrectomy for Duodenal Ulcer. L. S. McKittrick, F. D. Moore and R. Warren.—p. 531.
*Closure of Colonic Stoma: Improved Results with Combined Succinylsulfathiazole and Sulfathiazole Therapy. C. F. Dixon and R. E. Benson.—p. 562.
Advantages and Disadvantages of Closed Resection of Colon. W. C. White and F. H. Amendola.—p. 572.
Inflammatory Stricture of Rectum. F. M. Woods and C. R. Hanlon.—p. 598.
Influence of Estrogens on Peripheral Vasomotor Mechanism. E. J. McGrath and L. G Herrmann.—p. 607.
Modification of King Operation for Bilateral Vocal Cord Paralysis. J. W. Shirer.—p. 617.
Danger and Prevention of Citrate Intoxication in Massive Transfusions of Whole Blood. W. E. Adams, T. F. Thornton, J. G. Allen and D. E. Gonzalez.—p. 656.
Surgical Manifestations of Coccidioidomycosis. L. M. Quill and J. C. Burch.—p. 670.

Influence of Sulfonamides on Postoperative Complications.—Rhoads and Ravdin studied the mortality of the postoperative infection occurring in a general surgical service and made a comparison of the experience during the three years prior to the introduction of the sulfonamides with the experience during the four years following their general acceptance. The most important advance occurred in the treatment of postoperative bronchopneumonia, the gross mortality dropping from 69 per cent to 9 per cent. It is pointed out that better control of postoperative complications not only permits some saving of life but also permits a broader selection of patients, especially in the older age groups, for certain operations which are indicated but in which in the past the contraindications have slightly outweighed the indications.

Partial Pericardiectomy and Epicardiolysis in Constrictive Pericarditis.—Harrington reports 24 cases in which partial pericardiectomy and epicardiectomy with epicardiolysis were performed. He uses the term "epicardiolysis" to designate the separation of the innermost layer of the pericardium from the heart muscle. This procedure is used in addition to resecting a portion of pericardium and epicardium. Epicardiolysis is an important and essential part of the operative procedure. Immediately after operation all patients are placed in an oxygen tent. The oxygen not only prevents cyanosis but aids in relieving stress on the heart. Other postoperative measures are directed toward removal of body fluids and aiding the function of the heart and liver. In 9 cases of chronic constrictive pericarditis cure resulted from pericardiectomy; in another 9 cases the operation was followed by improvement, whereas death followed in the remaining 6 cases. This amounts to a mortality rate of 25 per cent. Although this is relatively high, the author thinks that this is commensurate with the seriousness of the disease and that the mortality rate would have been 100 per cent without surgical intervention. Eleven of the 24 patients can be considered cured at this time, and 2 additional patients may subsequently improve.

Relationship of Protein Deficiency to Surgical Infection.—Cannon and his associates demonstrated by both immunologic and chemical methods that in the blood serums of protein deficient rats there is a lowered concentration of antibody globulin fractions. This indicates the adverse action of protein deficiency on protein reserves. In many surgical conditions serum protein fractions are lost through exudates, hemorrhage or the kidneys. Furthermore, undernutrition caused by an inadequate intake, absorption or utilization of high quality protein may lead to depletion of the tissue protein reserves both before and after operation. This loss of tissue proteins may become critical if and when a potentially pathogenic microorganism enters tissues unprepared to mobilize the forces of acquired resistance. Reliance on the so-called albumin-globulin ratio for the determination of the state of the tissue protein reserves is inadequate. We need to know not only whether the globulins are in a lowered concentration but particularly whether there is a diminished concentration of the gamma globulin fraction. In the absence of a quantitative clinical method for determining the concentration of gamma globulin, dependence must be placed on the evaluation of the preoperative weight loss and total serum protein determinations. If the total serum protein concentration is found to be less than 5 Gm. per hundred cubic centimeters of serum, preoperative protein repletion should be attempted. Gamma globulin presumably contains many if not most of the essential amino acids. For its synthesis it is necessary to provide an abundance of essential amino acids. In patients with depleted globulin reserves repletion necessitates the ingestion or intravenous administration of proteins containing all of the essential amino acids. The further effects will depend on the patient's ability to convert these amino acids into tissue proteins, including antibodies.

Closure of Colonic Stoma.—Dixon and Benson report 102 consecutive cases in which succinylsulfathiazole and sulfathiazole were employed while the patients were hospitalized for closure of colonic stomas. In order to obtain an unbiased evaluation of the results of this treatment, three other groups of cases have been considered. Group 2 included 102 consecutive cases in which no sulfonamide drug was used. Group 3 included 40 cases in which only sulfanilamide was employed. Group 4 embraced 30 cases in which only sulfathiazole was administered. The authors stress that the oral administration of succinylsulfathiazole and the local application of sulfathiazole to the operative wound have greatly improved the results obtained in closure of colonic stomas. Infection of the operative wounds occurred in 84 per cent and a fecal fistula developed in 30 per cent of a series of 102 cases in which no sulfonamide drug was employed, whereas infection of the wounds occurred in only 13 per cent and a fecal fistula occurred in only 2 per cent of 102 cases in which a combination of succinylsulfathiazole and sulfathiazole was administered. These improvements are in large part attributable to the new chemotherapeutic agent succinylsulfathiazole, and they indicate the usefulness of this drug in surgical diseases of the lower intestinal tract.

Archives of Neurology and Psychiatry, Chicago

52:255-340 (Oct.) 1944

Head Injury: Study of Patients with Chronic Post-Traumatic Complaints. W. D. Ross and F. L. McNaughton.—p. 255.
Electroencephalogram Associated with Epilepsy. F. A. Echlin.—p. 270.
*Electroencephalogram Associated with Chronic Alcoholism, Alcoholic Psychosis and Alcoholic Convulsions. M. Greenblatt, S. Levin and F. di Cori.—p. 290.
Hypothalamus and Affective Behavior in Cats: Study of Effects of Experimental Lesions, with Anatomic Correlations. M. D. Wheatley. —p. 296.
Motor Nerve Function with Lesions of Peripheral Nerves: Quantitative Study. A. M. Harvey and S. W. Kuffler.—p. 317.
Electric Shock Therapy: Clinical, Biochemical and Morphologic Studies. S. Katzenelbogen, A. K. Baur and A. R. M. Coyne.—p. 323.

Electroencephalogram in Alcoholism.—Greenblatt and his associates studied the electroencephalograms and clinical histories of 157 patients with chronic alcoholism with and without psychosis, including patients with convulsions due to chronic alcoholism. They found that the incidence of electroencephalographic abnormality in patients with chronic alcoholic disorders increases with age. Persons with chronic alcoholism without psychosis, irrespective of the duration of drinking, show nothing of significance in the electroencephalogram. Chronic alcoholism with psychosis is associated with a higher than normal incidence of electroencephalographic abnormality. The presence of confusion or hallucinations in patients with alcoholic psychosis is frequently associated with electroencephalographic abnormality, and the disappearance of hallucinations or confusion is often accompanied by a change toward a more normal electroencephalogram. No evidence of paroxysmal dysrhythmia was found in 5 patients with pathologic intoxication, although 3 of the 5 patients had abnormal electroencephalograms. The highest incidence of electroencephalographic abnormality was found among those with deterioration or Korsakoff's syndrome. No specific electroencephalographic pattern was found in 4 patients with Korsakoff's psychosis. A relatively low incidence of electroencephalographic abnormality was found in 24 patients with "rum fits" (with a negative history for epilepsy and with seizures occurring only in association with alcoholism). On the other hand, a relatively high incidence of electroencephalographic abnormality was found in patients with idiopathic epilepsy with onset of seizures in the same age range as that of the patients with "rum fits." The authors conclude that an abnormal electroencephalogram may be of aid in predicting the duration of illness in patients hospitalized for chronic alcoholism.

Archives of Otolaryngology, Chicago

40:233-332 (Oct.) 1944

Development of Organ of Corti in Relation to Inception of Hearing. O. Larsell, E. McCrady Jr. and J. F. Larsell.—p. 233.
Indications, Procedures and Results in Surgical Management of Mastoiditis: Review of 33 Cases. D. G. Voorhees.—p. 249.
Bilateral Acoustic Neuritis: Review of Literature and Report of Case. M. R. Johnson.—p. 261.
*Reduced Atmospheric Pressure as Form of Treatment for Paranasal Sinusitis. D. B. Butler, G. J. Greenwood and A. C. Ivy.—p. 266.
Total Laryngectomy: Simplified Technics with Use of Special Clamp Which Makes Possible Removal of Larynx and Preepiglottic Space Without Opening the Pharynx. E. Vasconcelos and P. deM. Barretto. —p. 275.
Physical Characteristics of Some Bone Oscillators Used with Commercially Available Audiometers. F. M. Grossman and C. T. Molloy. —p. 282.
Fissural Cysts. H. C. Rosenberger.—p. 288.
Neurinoma of Facial Nerve. R. M. Bogdasarian.—p. 291.

Reduced Atmospheric Pressure for Sinusitis.—In the past two years Butler and his associates used the decompression method for 125 patients with subacute and chronic sinusitis. All the patients had symptoms attributable to sinusitis and the majority had been referred to the authors after measures such as surgical treatment, lavage, siphonage, vaccine injections and diathermy had failed. No patients with acute sinusitis have been included in the series. The average duration of the sinus disease in the patients studied was 9.5 years. Treatments were administered in a large decompression chamber of the type currently used for studies of aviation medicine. The pressure was rapidly reduced to 522.6 mm. of mercury, the equivalent of ascent to an altitude of 10,000 feet. The rate of the "ascent" was 5,000 feet per minute. On reaching the pressure at 10,000 feet recompression ("descent") was begun, but at the much slower rate of approximately 700 feet per minute. Rapid "ascent" to 10,000 feet was alternated with slow "descent" to 5,000 to 6,000 feet for a period of forty minutes, and then slow "descent" to ground level completed the treatment. Patients were treated twice a week. Altogether, 2,259 treatments were given to the group—an average of 18.1 treatments per patient. At the conclusion of their course of treatment 89.5 per cent of the 125 patients experienced subjective improvement. Of 29 patients who were followed by serial x-ray studies after instillation of radiopaque oils, 17 showed improvement in the roentgenogram after the decompression treatments. Of 42 patients who were studied by repeated rhinologic examinations, 30 showed improvement in their sinus condition after being treated by decompression.

Bull. of the U. S. Army Med. Dept., Washington, D. C.

82:1-122 (Nov.) 1944

Secondary Suture of War Wounds. H. Wilson and F. D. Threadgill. —p. 77.
Orientation Data Regarding Psychoneurosis. F. G. Ebaugh.—p. 81.
*Plasmochin Intoxication. J. B. West and A. B. Henderson.—p. 87.
Anterior Acrylic Dowel Crown. F. W. Stevens.—p. 100.
Spontaneous Pneumothorax in Soldiers. P. P. Pease, L. G. Steuer and A. S. Chapman.—p. 102.
Lumbar Puncture Headaches. M. J. Levin.—p. 107.
Bacteriologic Study of Mess Equipment. A. F. Sellers and G. H. Gowen. —p. 111.

Plasmochin Intoxication.—West and Henderson report observations on 846 cases of malaria caused by Plasmodium falciparum. All patients were hospitalized. Therapy consisted of 10 grains (0.65 Gm.) of quinine sulfate three times daily after meals for three days, or until the temperature was controlled, followed by atabrine 1½ grains (0.1 Gm.) three times daily after meals for five days. Complete blood cytologic examination of each patient was done at the completion of eight days of therapy, and no patient was discharged from the hospital until three consecutive negative smears had been reported and the erythrocyte count was above 4 million. After a rest period of two days each patient was placed on plasmochin 0.01 Gm. three times daily after meals for five days. All of the 846 patients with malarial fever received plasmochin treatment and 24 were readmitted to the hospital suffering from complaints which were believed to have resulted from plasmochin intoxication. Of these 24 patients, 2 had experienced four previous attacks of malarial fever each. Plasmochin had been administered to these 2 patients after each previous attack without untoward reactions. The remaining 22 patients had not previously been infected with malaria. The sign-symptom complex presented by these patients was not duplicated by patients not having received plasmochin. The complex consisted of jaundice, abdominal pains, headache, nausea and vomiting. Other symptoms were hyperexcitability, both subjective and objective, dizziness, stiffness and pains in the joints, low back pains and eructations of gas. Therapy was supportive and expectant. Forced fluids, including reconstituted plasma and isotonic solution of sodium chloride with 5 per cent glucose, were administered in the severe cases by venoclysis, and alkalization was a routine measure. All patients recovered. Previous history of yellow fever inoculations in all of the patients suggests the possibility of such inoculations having had some influence on the incidence of plasmochin intoxication. The authors arrive at the following conclusions: 1. Plasmochin is potentially a highly toxic drug when administered in large doses. 2. Plasmochin may produce varying degrees of secondary anemia. 3. There is no relationship between the number of previous attacks of malaria, the parasitic index and the incidence of plasmochin intoxication. 4. The individual reaction to plasmochin is inconstant and unpredicatable. 5. The untoward results of plasmochin are not permanent, but convalescence is protracted. 6. The dosage of 0.01 Gm. of plasmochin twice daily for two days is sufficient in most instances to render the blood of a malarial patient noninfectious for mosquitoes and is simultaneously a safe dosage from the standpoint of potential toxicity.

Delaware State Medical Journal, Wilmington

16:147-162 (Sept.) 1944

Treatment of Varicose Veins and Ulcers. W. H. Erb.—p. 147.
Eastern Shore Broiler Industry and Its Problems. J. L. Cherry.—p. 149.

Journal of Bone and Joint Surgery, Boston

26:621-836 (Oct.) 1944. **Partial Index**

Army Amputation Program. L. T. Peterson.—p. 635.
Amputations: Surgery and Plastic Repair. T. Campbell and R. H. Alldredge.—p. 639.
Anatomic and Physiologic Considerations in Alinement and Fitting of Amputation Prostheses for Lower Extremity. A. Thomas.—p. 645.
Upper Extremity Amputations and Prostheses. F. M. McKeever.—p. 660.
*Acute Manifestations of Yaws of Bone and Joint. A. J. Helfet.—p. 672.
Posterior Approach to Femur. D. M. Bosworth.—p. 687.
Internal Fixation for Intertrochanteric Fractures. G. M. Taylor, A. J. Neufeld and J. Janzen.—p. 707.
Cervical Axial Osteotomy of Femur: Preliminary Report. G. W. Leadbetter.—p. 713.
Fractures of Ankle. E. Burgess.—p. 721.
March Fracture: Statistical Study of 47 Patients. D. G. Leavitt and H. W. Woodward.—p. 733.
*March Fracture: Report of 307 Cases and New Method of Treatment. A. Bernstein and J. R. Stone.—p. 743.
*Insufficiency Fracture of Calcaneus: Similar to March Fracture of Metatarsal. C. W. Hullinger.—p. 751.
Os Purum Implant: Substitute for Autogenous Implant. C. W. Goff.—p. 758.
Conservative Treatment of Fracture of Clavicle. B. D. Packer.—p. 770.
Use of Aluminum Acetate in Treatment of Malacic Diseases of Bone. R. K. Ghormley and J. J. Hinchey.—p. 811.
Herniation of Nucleus Pulposus: Study of 100 Cases Treated by Operation. A. D. Smith, E. M. Deery and G. L. Hagman.—p. 821.
Epidemiology of Poliomyelitis. R. Ward.—p. 829.
*New Deodorizing Plaster Bandage. C. N. Lambert and D. W. Stickney.—p. 836.

Acute Manifestations of Yaws of Bone and Joint.—Helfet directs attention to the fact that yaws of bones and joints may take a rapid and painful course. The patient rarely gave a history of more than a few weeks and as revealed in roentgenograms it may take no longer for severe bone changes to develop. Whereas in syphilis a gummatous attack on a joint surface may not even be accompanied by muscle spasm or limitation of movement, in yaws a juxta-articular lesion may simulate arthritis of the joint itself, with pain, tenderness, swelling, muscle spasm and limitation of movement. Where the shaft of a long bone is involved, a picture resembling a septic osteomyelitis may result, with intense pain, swelling and pyrexia, although the fever is rarely high. Trauma cannot be discounted as a localizing, precipitating factor. The onset may be heralded by fever and widespread "rheumatic" pains. Owing to the prevalence of chronic malaria, which has similar features, yaws is often diagnosed as such and treated with quinine. It is not until localizing symptoms present themselves that yaws is suspected. The tibia, the lower end of the femur, the inner end of the clavicle and the lower end of the humerus appear to be the sites of election. The Wassermann and Kahn reactions are invariably positive. The disease tends to attack joints and tendon sheaths. The symptoms accompanying these swellings of joints and tendon sheaths rapidly disappear when treated with arsenicals, but the swellings themselves subside very slowly. The author used diethylamine acetarsone, neoarsphenamine or alternate doses of injection of bismuth (B. P.) and sulfarsphenamine, all with good effect.

March Fracture.—According to Bernstein and Stone, 307 cases of march fracture of the foot were observed in nine months at Camp Wolters, Texas. They disagree with the conclusions drawn by some authors that most of these men do not make good infantry soldiers once they have suffered such a fracture because their ability to walk great distances is gone. They insist that with their method of treatment the trainees with march fracture recover completely, make good infantry soldiers and finish all the required prolonged marches and speed hikes. The treatment is not original but has been used previously for fractures of the toes, bursitis between the heads of the metatarsals and various other conditions of the foot. Patients with a march fracture complain of pain during the push-off phase of the gait, when the weight is borne on the heads of the first, second and fifth metatarsals, with the toes dorsiflexed and the heel off the ground. If during the gait the foot is held rigid, thus eliminating motion at the metatarsophalangeal joints, the pain is greatly decreased. In order to accomplish this rigidity a steel bar ½ to ⅝ inch wide, ⅛ inch thick and 6 inches long is countersunk into the sole of the shoe. The relief obtained becomes more noticeable after several days, as soon as the patient becomes accustomed to walking with a stiff soled shoe. Most patients continue with their full training and are not hospitalized. Occasionally the patient is further relieved by placing a felt pad along the longitudinal arch. The steel bar is kept in position for four to five weeks, at which time the fracture has solidly healed. The metal bar can then be removed and used again.

Insufficiency Fracture of the Calcaneus.—Hullinger says that at Camp Wheeler 71 proved cases of fracture of the calcaneus were observed in 53 patients in less than a year. These fractures resulted from the "toughening up" of the training program. In many the condition was at first given erroneous diagnoses such as synovitis of the ankle joint, synovitis of the subtalar joint, strain of the subtalar joint, contusion of the heel or edema of undetermined origin. The diagnosis was made early only on the history, signs, symptoms and course of the condition. After about six to ten weeks it was confirmed by the appearance of the streak of calcified callus seen in the roentgenograms of the calcaneus. Treatment included rest, avoidance of weight bearing on the heels and physical therapy. Later felt heel inserts or rubber heel elevations or both were used. After a period of eight to ten weeks the men were able to return to full military duty. No recurrences took place. They are found for the most part in the older soldiers who are inadequate physically and structurally and who frequently have inadequate personalities. The fractures cause only temporary disability, but recognition is important to avoid the physical punishment to the individual of continuing full duty.

New Deodorizing Plaster Bandage.—Lambert and Stickney combine activated carbon and plaster of paris with a binder to form a cementitious composition, which is applied to crinoline bandages to produce a hard coat type of plaster bandage. Casts made of this material are gray. The gray cast has a lower specific gravity and density and produces a more porous structure with greater air and fluid permeability. The customary waxy deposit seen on the inner surface of regular plaster casts in drainage wounds is not present when deodorizing bandages are used. The technic of using gray deodorizing plaster bandages does not differ from that of using regular plaster. The authors use the deodorizing gray plaster only over the anticipated drainage area. They cover this with an overlay of ordinary white plaster, comprising two thirds of the bandages used, which not only covers the gray bandages but extends above and below the adjacent joints and completes the cast. The finished appearance, then, is that of an ordinary conventional white plaster cast. Clinical experience has demonstrated that the odor of osteomyelitis and infected compound fractures can be eliminated by the use of these gray plaster bandages.

Journal of Clinical Endocrinology, Springfield, Ill.

4:417-468 (Sept.) 1944

Myxedema: Record of Autopsied Case, with Special Emphasis on Lesions of Muscles. M. Foster and D. Barr.—p. 417.
Problems in Treatment of Cardiac Failure in Myxedema. T. McBavack and D. Schwimmer.—p. 427.
Observations on Diseases of Thyroid as Encountered in Western North Carolina. A. Grollman and C. Gryte.—p. 440.
Use of Thiouracil in Thyrotoxicosis. A. Grollman and C. Gryte.—p. 444.
Nondiabetic Glycosuria, with Comments Concerning Significance of Insulin Induced Ketonuria: Case Report. N. W. Drey.—p. 447.
Effect in Man of Chronic Intermittent Anoxia on Glucose Tolerance and Urinary Excretion of Sodium, Potassium, Chloride, Phosphorus, Nitrogen and 17-Ketosteroids. A. H. Bryan and H. T. Ricketts.—p. 450.

Journal of International College of Surgeons, Chicago

7:337-422 (Sept.-Oct.) 1944

Rehabilitation, or Salvaging of Manpower. F. H. Albee.—p. 337.
Crush Syndrome. H. Bailey.—p. 343.
Naval Medical Research in Wartime. W. L. Mann.—p. 349.
Indications for Extraperitoneal Cesarean Section in Certain Cases of Dystocia of Soft Parts and in Infected Women. B. J. Gastélum.—p. 355.
Nearthrosis Following Comminuted Fracture of Elbow Joint. F. Mandl.—p. 362.
Thoracic Injuries in Combat Zone. C. M. Shaar.—p. 365.
Army Rehabilitation. C. E. Gorman.—p. 370.
New Technic of Thoracoplasty Through Axilla. M. Vergara Soto.—p. 377.
Abnormalities of Female Genitalia. M. Weintrob.—p. 381.
Appendical Coprolith Simulating Ureteral Calculus. W. G. Coleman.—p. 397.
Physical Medicine and Rehabilitation Problem. W. D. McFee.—p. 402.

Kentucky Medical Journal, Bowling Green

42:301-328 (Oct.) 1944

Some Aspects of Tuberculosis Problem. O. O. Miller.—p. 303.
Conservatism and Liberalism in Medicine. F. G. Speidel.—p. 308.
Common Areas of Medicine and Dentistry. J. T. O'Rourke.—p. 311.
Poor Diagnostic Value of Cold Agglutinins in Primary Atypical Pneumonia. A. C. McCarty and G. L. Infield.—p. 317.
Postwar Planning. H. K. Stark.—p. 318.
Primary Carcinoma of Liver: Case Report. A. B. Ortner.—p. 320.

42:329-358 (Nov.) 1944

Hazards Related to Thyroid Surgery. J. F. Van Meter.—p. 335.
Medical Direction of Human Drives in War and Peace. D. N. W. Grant.—p. 339.
Continuous Caudal Analgesia in Obstetrics. J. F. Hyden.—p. 345.
Use of Penicillin in Treatment of Venereal Diseases and Dermatoses at Fort Knox. J. C. Slaughter Jr.—p. 348.
Colloids, Benzene Ring and Induction Current in Cancer. R. A. Bate.—p. 351.

New England Journal of Medicine, Boston

231:543-570 (Oct. 19) 1944

Studies in Medical Sociology: I. Relation of Mental Disorders to Community Socioeconomic Level. R. W. Hyde and L. V. Kingsley.—p. 543.
Uterine Bleeding and the Roentgenologist. J. V. Meigs.—p. 549.
Advances in Inhalation Therapy, with Particular Reference to Cardiorespiratory Disease. M. S. Segal.—p. 553.
Epilepsy and Convulsions in Childhood. R. K. Byers.—p. 556.

231:571-608 (Oct. 26) 1944

Studies in Medical Sociology: II. Relation of Mental Disorders to Population Density. R. W. Hyde and L. V. Kingsley.—p. 571.
Tropical Ulcer. M. H. Feinman.—p. 578.
Use of Blood in Treatment of Duodenal Fistula. P. A. Consales and W. T. O'Connell.—p. 582.
Parenteral Fluid Therapy: I. Estimation and Provision of Daily Maintenance Requirements. A. M. Butler and N. B. Talbot.—p. 585.

North Carolina Medical Journal, Winston-Salem

5:517-576 (Nov.) 1944

Ménière's Symptom Complex. C. H. Smith.—p. 517.
Vitamin C Content of Some North Carolina Cooked Foods. D. F. Milam and B. Webb.—p. 521.
*Intestinal Bleeding from Ulceration of Meckel's Diverticulum with Report of Two Cases. K. D. Weeks.—p. 524.
Diseases of Meckel's Diverticulum in Children. C. R. Bugg.—p. 527.
Postmenopausal Endometriosis Following Stilbestrol Therapy. W. Z. Bradford.—p. 530.
*Experience with Sulfapyrazine in Children. H. N. Vandegrift.—p. 531.
Blue Cross Plan. E. B. Crawford.—p. 535.
Doctor's Solution of Two Major Problems Confronting Medical Profession. W. R. Stanford.—p. 542.

Intestinal Bleeding from Meckel's Diverticulum.—Meckel's diverticulum has been discovered at operation at Duke Hospital forty-five times since 1930. The majority, according to Weeks, were found in patients in whom abdominal pain, recent or recurrent, was associated with signs of an acute surgical emergency and in whom acute appendicitis was suspected. Most of the other cases came to operation because of bleeding from the gastrointestinal tract, intestinal obstruction or a fistulous tract in the abdomen. Two patients had unexplained bleeding from the bowel. Both were proved at operation to be instances of bleeding from an ulcer of Meckel's diverticulum. One of these patients was a white boy aged 14 years who had had two episodes of hemorrhage over a period of two years, the second attack resulting in profound anemia. An interesting feature in the boy's family history was that his father had died as a result of intestinal obstruction due to intussusception of a Meckel's diverticulum into the terminal ileum and cecum. The other patient was a white man aged 23 who had had recurrent bloody stools and also many tarry stools for a period of six years. The author stresses that Meckel's diverticulum should be considered in the differential diagnosis of acute or recurrent periumbilical and lower quadrant abdominal pain. This embryonic vestige is capable of producing serious complications, the most common of which are acute and chronic diverticulitis, perforation resulting in peritonitis, mechanical obstructions, ulceration resulting in serious exsanguinating hemorrhage, and fistulous tracts. It should be a routine procedure to explore the ileum in search of Meckel's diverticulum in all appendectomies when the appendix is found not to be grossly inflamed. Hemorrhage from Meckel's diverticulum should be suspected in any case of recurrent, painless bleeding from the bowel.

Experience with Sulfapyrazine in Children.—Vandegrift studied therapeutic effectiveness and toxicity of sulfapyrazine in children. One hundred and nineteen unselected pediatric hospital patients were studied. Those with only moderate infections were treated by the oral route. Children with more severe infections were given the drug intravenously or subcutaneously at first and later by oral administration. Blood levels were obtained on all patients at twenty-four, seventy-two and ninety-six hour intervals. After an initial dose of ½ grain per pound, infants received 1 grain (0.064 Gm.) per pound every twenty-four hours, divided into six daily doses. Children over 6 years of age received 2 Gm. of sulfapyrazine initially and 0.5 Gm. every four hours. Twenty-one patients were considered sufficiently ill to warrant the administration of 1 per cent sodium sulfapyrazine intravenously in a dosage of 1½ grains (0.01 Gm.) per pound every twenty-four hours. Later sulfapyrazine was given orally. Many patients with moderately severe infections who were unable to retain the drug by mouth were treated by the subcutaneous injection of a 0.5 per cent solution of sodium sulfapyrazine in isotonic solution of sodium chloride, the dosage being ½ grain (0.032 Gm.) per pound every eight hours for twenty-four to forty-eight hours. Sulfapyrazine was then given orally. Sulfapyrazine diffuses into the spinal fluid to about the same degree as do the other sulfonamides, reaching a level from 50 to 60 per cent as high as the blood level. It was found that the blood levels obtained with sulfapyrazine were much lower than those obtained with sulfadiazine. Doubling the dose increased the blood level by only 0.5 mg. per hundred cubic centimeters, regardless of the age of the patient. These lower blood levels were, however, as effective as the higher levels obtained with other sulfonamides. The only toxic reactions found in 119 infants and children treated with sulfapyrazine were 1 case of gross hematuria after intravenous therapy and 9 instances of transient microscopic hematuria. The authors conclude that sulfapyrazine is an excellent drug for various types of infections in infants and children.

Public Health Reports, Washington, D. C.

59:1363-1390 (Oct. 20) 1944

Epidemic of Severe Pneumonitis in Bayou Region of Louisiana: III. Pathologic Observations. Report of Autopsy on 2 Cases, with Brief Comparative Note on Psittacosis and Q Fever. C. H. Binford and G. H. Hauser.—p. 1363.
Id.: IV. Preliminary Note on Etiology. B. J. Olson and C. L. Larson.—p. 1373.
Mouse Protective Antibodies in Human Serums Following Injections with Cholera Vaccine. J. J. Griffitts.—p. 1374.
Rearing of Sterile Adult Anopheles. M. A. Barber.—p. 1384.

59:1391-1422 (Oct. 27) 1944

Pathologic Reaction to Virus of Lymphocytic Choriomeningitis in Guinea Pigs. R. D. Lillie and C. Armstrong.—p. 1391.
Medical Care: Private Enterprise or Social Service? J. W. Mountin.—p. 1405.

Yale Journal of Biology and Medicine, New Haven

17:1-350 (Oct.) 1944. **Partial Index**

Bioassay of Beta-Estradiol. S. A. Thayer, E. A. Doisy Jr. and E. A. Doisy.—p. 19.
Influence of Age on Epidermal Carcinogenesis Induced by Methylcholanthrene in Mice. E. V. Cowdry and V. Suntzeff.—p. 47.
Effect of Hypothyroidism on Menstruation in Adult Rhesus Monkeys. E. T. Engle.—p. 59.
Leukemogenic Action of Estrogens in Hybrid Mice. W. U. Gardner and T. F. Dougherty.—p. 75.
Growth and Development of Pelvis of Individual Girls Before, During and After Puberty. W. W. Greulich and H. Thoms.—p. 91.
Relation Between the Incidence and Incubation Period of Cancer in Man. E. L. Kennaway and N. M. Kennaway.—p. 139.
Recent Studies on Experimental Mammalian Leukemia. A. Kirschbaum.—p. 163.
Hormone Secretion by Experimental Cryptorchid Testes. C. R. Moore.—p. 203.
Rate of Thyroxine Secretion by Thyroid Glands of White Leghorn Cockerels. A. B. Schultze and C. W. Turner.—p. 269.
Genetic Nature of Constitutional States of Cancer Susceptibility and Resistance in Mice and Men. L. C. Strong.—p. 289.
Estrogen Tolerance in Pregnancy. G. van Wagenen and A. H. Morse.—p. 301.
Effects of Gastric Mucin on Growth of Transplanted Tumor (Lymphosarcoma) Cells in Mice. W. L. Williams.—p. 311.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

19:99-144 (Sept.) 1944

*Treatment of Celiac Disease with Vitamin B Complex and Concentrated Liver. D. Paterson, M. Pierce and Eleanor Peck.—p. 99.
Atrophic Sclerosis of Cerebral Cortex Associated with Birth Injury. R. M. Norman.—p. 111.
Prognosis and Treatment of Pneumonia in Children. F. L. K. Lewis. —p. 122.
Observations on Otitis Media and Mastoiditis in Infancy. E. C. R. Couper.—p. 126.

Vitamin B and Liver in Celiac Disease.—Certain aspects of the disease, according to Paterson and his co-workers, suggest that it may be a deficiency syndrome and that the vitamin B complex may be involved. The similarity of certain symptoms to those encountered in nontropical sprue and in the chronic vitamin B deficiency syndrome of adults seems significant. Celiac disease appears to be six or seven times more prevalent in the British Isles since the outbreak of war in September 1939. Because of the problems related to the dietary treatment of celiac disease under wartime conditions, the views of May et al. attracted much attention. They advocated a normal, balanced diet, supplemented by vitamins A, C and D, combined with the parenteral administration of crude liver and vitamin B complex. Twenty-six patients with idiopathic celiac disease and 4 patients with the celiac syndrome were treated by Paterson and his co-workers with liver extract given parenterally and vitamin B complex given parenterally and orally. Satisfactory gains in weight and height, and improvement in general health were obtained in the early weeks of treatment and sustained over a period of months in the patients who received sufficiently intensive and prolonged therapy. Less dramatic improvement and less satisfactory weight gains resulted when the parenteral liver extract was given in conjunction with an oral instead of a parenteral vitamin B complex preparation. The children thrived on a normal balanced diet during or after the initial weeks of treatment. The total stool fats improved in all but 4 cases and returned to normal in 18 of 26. Slow improvement was commonly associated with the occurrence of upper respiratory infections. In the secondary type of the disease the "celiac syndrome," resulting from chronic foci of infection, improvement appeared to be hastened by intensive therapy with liver and vitamin B complex.

Journal of Physiology, Cambridge

103:137-252 (Sept. 29) 1944

Effect of Morphine and Hyoscine on Dye Concentration Curves in Plasma Volume Determination. R. G. Bowler, A. C. Crooke and C. J. O. R. Morris.—p. 137.
Behavior of Cervix Uteri in Vivo. J. Adler, G. H. Bell and J. A. C. Knox.—p. 142.
Excretion of Histamine in Urine. G. V. Anrep, M. S. Ayadi, G. S. Barsoum, J. R. Smith and M. M. Talaat.—p. 155.
Cation Antagonism in Blood Coagulation. G. D. Greville and H. Lehmann.—p. 175.
Isolation and Identification of Pressor Base from Normal Urine. Mary F. Lockett.—p. 185.
Further Observations on Effects of Alloxan on Pancreatic Islets. J. S. Dunn, E. Duffy, M. K. Gilmour, J. Kirkpatrick and N. G. B. McLetchie.—p. 233.
Hyperpnea in Man Produced by Sudden Release of Occluded Blood. J. N. Mills.—p. 244.

Lancet, London

2:491-520 (Oct. 14) 1944

*Desert Climate: Physiologic and Clinical Observations. W. S. S. Ladell, J. C. Waterlow and M. F. Hudson.—p. 491.
*Treatment of Staphylococcal Infections with Penicillin by Intermittent Sterilization. J. W. Bigger.—p. 497.
Ovarian Fibroma with Ascites and Hydrothorax (Meigs's Syndrome). R. H. Gardiner and V. Lloyd-Hart.—p. 500.
Hereditary Familial Telangiectasis with Epistaxis and Migraine. A. M. G. Campbell.—p. 502.
Congenital Syphilis with Obscure Initial Signs. C. P. LaPage.—p. 503.

Desert Climate.—Ladell and his collaborators outline observations made in southern Iraq on British army personnel. Physiologic and biochemical observations were made each week from May to October on 24 soldiers. These were to serve as controls for similar observations made on men suffering with the effects of heat. All of the fit men lost some weight. The loss was greatest in those who had the highest chloride concentrations in their sweat. It is suggested that this loss was due to a minor degree of salt deficiency dehydration. Salt deficiency dehydration was indicated by low urine output in spite of a high water intake, low urinary chloride output and raised blood urea. The blood pressure fell as the weather grew hotter. Twelve cases of hyperpyrexia are described. The onset was acute, with absence of sweating and loss of consciousness. These patients all went through a phase of apparent negative water balance; they excreted large quantities of dilute urine at a time when they were drinking little. During this phase the chloride content of the blood was diminished. These findings support the view that hyperpyrexia is accompanied by superhydration. Two distinct types of heat exhaustion were observed. Patients with type 1 heat exhaustion were seen mainly in the first half of the summer. Vomiting and cramps were common. The patients were pale, collapsed and sweating profusely. The blood pressure was occasionally low, but the most consistent abnormality was reduction in pulse pressure; on standing, syncope occurred. Heat exhaustion type 1 was a salt deficiency dehydration; plasma and whole blood chlorides were grossly diminished, hemoglobin and plasma protein were raised, blood urea was high, extracellular fluid and plasma volumes were diminished, and the urine was scanty, of high specific gravity and almost free from chloride. Treatment of these patients consisted in replacement of salt and water. There is evidence that type 1 heat exhaustion occurs in persons who habitually secrete sweat containing a much higher concentration of chloride than the average; their salt intake is inadequate at high rates of sweating, and they become salt deficient. Prevention of these cases might be achieved by increasing the salt intake. Any man who is consistently losing weight and is excreting a concentrated urine with low or absent chloride should be given extra salt. Cases of heat exhaustion type 2 were seen only in the second half of the summer among men who had already come through the hottest weather unscathed. Clinically they were characterized by defective sweating and polyuria; the skin showed prickly heat in the healing and desquamating stage. These patients were salt deficient, but not so grossly as those of type 1, and they were not dehydrated. During convalescence they secreted a sweat with a high concentration of chloride. Signs of a similar breakdown were found in some of the fit men in that during the second half of the summer their sweat was richer in chloride than it had been during the first half. The incidence of heat exhaustion type 2 could probably be reduced if men—particularly those suffering from severe prickly heat—were given a break of a few days in a cooler climate after eight weeks' continuous exposure to extreme desert conditions.

Treatment of Staphylococcic Infections with Penicillin.—Bigger says that results obtained by him strongly oppose the commonly accepted belief that penicillin is merely bacteriostatic. He cites observations which justify the statement that penicillin is bactericidal for Staphylococcus pyogenes. The author further shows that failure of penicillin to sterilize broth containing Staphylococcus pyogenes is due to the survival of a small number of staphylococci called persisters. It is believed that persisters are insensitive to penicillin because they are temporarily in a nondividing phase and because penicillin kills only bacteria which are about to divide. Unlike resistant strains, descendants of persisters are easily killed by penicillin. Penicillin fails to cure staphylococcic infections in the body because some of the cocci are in the persister phase. A scheme of treatment in which penicillin is alternately administered and withheld is suggested in the hope that bacteria in the persister phase will divide during an intermission and be killed by penicillin when its administration is recommenced. The details of treatment must depend on clinical trials, but it is suggested that the first treatment should extend to four days and subsequent treatments to two days. It is difficult to decide on the optimum duration of intermissions. If too short, only a few persisters may have resumed their activities. If too long, a fresh infection may have begun. A tentative scheme suggested by the author provides that the first two intermissions should last one day each, the other two, however, two and three days respectively.

Book Notices

Manual of Military Neuropsychiatry. Edited by Harry C. Solomon, M.D., Professor of Psychiatry, Harvard Medical School, Boston, and Paul I. Yakovlev, M.D., Clinical Director, Walter E. Fernald State School, Waltham, Mass. With the collaboration of Wilfred Bloomberg, Lt. Col., M. C., A. U. S., et al. Cloth. Price, $6. Pp. 764, with illustrations. Philadelphia & London: W. B. Saunders Company, 1944.

Essays from forty-five contributors dealing with the various aspects of military neuropsychiatry have been assembled by the editors into a compact and attractive volume which is intended for use principally by medical officers of the armed forces stationed where adequate reference material may not be available. The contents are divided into (1) introduction, (2) induction, (3) administration and disposition, (4) clinical entities, (5) prophylaxis and therapy and (6) special topics. The reported organization of the neuropsychiatric examination at the induction station is based chiefly on experiences of the authors at the Boston Induction Station. The differences in the administration and disposition of the neuropsychiatric cases in the Army, Navy and Merchant Marine are well presented. Description and discussion of the common clinical neurologic and psychiatric entities are given in clear concise language in part 4. This section is somewhat weakened by a lack of presentation of clinical entities which seem peculiar to the different military groups during or following combat. The editors comment that most of these clinical entities are essentially the same, whether they occur in a soldier or in a civilian. Many other authorities in the field would not agree to such an opinion, and a good deal of factual information has been collected to show that there are often gross differences in the types of mental illness commonly seen in the soldier and in the civilian. Prophylaxis and therapy are adequately presented and include an excellent discussion of the will to fight. Special topics presented in part 6 include the neuropsychiatric aspects of tropical diseases, disorders incident to the tropics, hazards of flying, convoy and torpedo casualties, experiences of foreign armies and a clinical discussion of cerebrospinal fluid and electroencephalography.

Orthopædic Surgery. By Walter Mercer, M.B., Ch.B., F.R.C.S., Assistant Surgeon, Royal Infirmary, Edinburgh. With a foreword by Sir John Fraser, Bart., K.C.V.O., M.D., Regius Professor of Clinical Surgery in the University of Edinburgh. Third edition. Cloth. Price, $12. Pp. 947, with 415 illustrations. Baltimore: William Wood & Company, 1943.

To those who have read the first edition of this treatise the appearance of a third will serve as additional proof of its popularity. Important additions have been made in the chapters on circulatory disturbances, disorders of the back, knee, shoulder and foot, and infections of the hand. These additions have helped to bring the book up to date.

One cannot but help being impressed, as one reads, with the scope and importance of modern orthopedic surgery. Mercer has included not only diseases of the bones, muscles and tendons but also those of the nerves and blood vessels. In other words, orthopedic surgery now includes practically all extremity surgery and, in addition, many important diseases of the trunk. To cover all of these subjects adequately in a volume of 900 pages is an almost impossible task. Dr. Mercer has done an excellent piece of work, considering the inherent difficulties which he faced.

It must be constantly borne in mind that only an outline can be given and that for the successful practice of orthopedic surgery the details of the picture must be filled in by a thorough knowledge of the compendious current literature. Were the author to attempt to include a discussion of the numerous divergent views regarding diagnosis and therapy, the volume would become so bulky as to make publication almost impossible. Brevity must therefore replace the details of the highly specialized studies dealing with single phases of orthopedic surgery. This essential limitation of the book makes itself particularly evident in such chapters as the one on bone tumors, where the diagnosis rests on accurate knowledge of numerous details. In other chapters, such as the one on tuberculosis, this difficulty does not make itself as keenly felt.

For the general practitioner, as well as for the general surgeon, this book is of particular value.

A Concise Pharmacology and Therapeutics of the More Important Drugs, Together with an Introduction to the Art of Prescribing. By F. G. Hobart, Ph.C., Head of the Pharmaceutical Department, Westminster Hospital, London, and G. Melton, M.D., M.R.C.P., Senior Physician, Dudley Road Hospital, Birmingham. With a foreword by Sir Adolphe Abrahams, O.B.E., M.A., M.D. Second edition. Cloth. Price, 12s. 6d. Pp. 168. London: Leonard Hill, Ltd., 1944.

According to the authors, this book is intended "only to discuss the action of drugs in relation to practical therapeutic considerations" and "represents an attempt to present concisely, but in sufficient detail, the pharmacology of the more important drugs used in the British Commonwealth and the United States of America." Unfortunately, the authors have made such a concise presentation that the value of the book is lessened. It is not suitable for medical students unless supplemented by the better known textbooks on pharmacology and therapeutics. Errors are occasionally seen. For example, the authors state that mild silver protein is a preparation similar in character to strong silver protein but it contains a considerably smaller proportion of silver. Apparently it has been forgotten that the adjectives "strong" and "mild" refer to the therapeutic action, as made evident by the degree of ionization, and not to the total silver content. Also there are not included a few of the more well known new drugs. For instance, in the sulfonamide section, sulfamerazine and sulfapyrazine are not included.

For those who like to maintain complete libraries the book may provide some additional value, as it supplies a list of proprietary names and nonproprietary equivalents presumably in England. The number of names in this list is almost three hundred.

Practical Occupational Therapy for the Mentally and Nervously Ill. By Louis J. Haas, F.A.A., O.T.R., Director, Men's Therapeutic Occupations, The New York Hospital, Westchester Division, White Plains, N. Y. Cloth. Price, $6. Pp. 432, with 356 illustrations. Milwaukee: Bruce Publishing Company, 1944.

This edition is evidently arranged primarily for the occupational therapy worker in mental hospitals. Over half the book is devoted to technics of various crafts; another portion is devoted to the operation of the occupational therapy department, while a smaller part is used for the excellent portrayal of history and theory of occupational therapy as applied to mental patients. Although it is not suitable as a textbook in schools of occupational therapy, the book will serve as a source of inspiration for the many therapists in mental hospitals. Physicians and administrators will find this volume helpful in gaining a working knowledge of occupational therapy and its uses in treating mental patients. Commendable features are the bibliographies at the end of the chapters and the use of case history reports to demonstrate principles. These features clarify the theory and emphasize the practical applications of occupational therapy.

Manual of Human Protozoa with Special Reference to Their Detection and Identification. By Richard R. Kudo, D.Sc., Associate Professor of Zoology, The University of Illinois, Urbana. Cloth. Price, $2. Pp. 125, with 29 illustrations. Springfield, Ill. & Baltimore: Charles C Thomas, 1944.

This manual is made up from the laboratory notes of an emergency course given at the University of Illinois. It contains brief descriptions and diagnostic figures of the Protozoa found in the digestive tract, circulatory system and tissues of man. Technics for their preparation for microscopic examinations are also given. Keys for the differential diagnosis of the intestinal amebas and flagellates are provided. The illustrations are excellent but too limited for critical work on the life cycles of some species. It is a convenient handbook for use in the clinical laboratory.

Studies on Immunisation, Second Series with Appendices Dealing with Anti-Typhoid Inoculation, Chemo-Therapy and Statistical and Other Operations of Induction. By Sir Almroth E. Wright, M.D., F.R.S., Director of the Inoculation Department and Principal of the Institute of Pathology and Research, St. Mary's Hospital, London. [Reprints.] [Researches from the Inoculation Department, St. Mary's Hospital, IV.] Cloth. Price, 25s. Pp. 250, with illustrations. London: William Heinemann, Ltd., 1944.

This is another volume of "collected researches" from the inoculation department of St. Mary's Hospital in London. Besides the appendixes it contains reprints of nine articles on vaccine therapy, on prophylactic inoculation against pneumonia, on tuberculous disease and on immunity published at various times between 1910 and 1942.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

EXPOSURE TO ALUMINUM DUST

To the Editor:—A physician has recently made the statement that an attack of acute bronchitis in an industrial worker was due to exposure to aluminum dust suspended in the atmosphere to which the employee is subjected in the course of his work, citing the presence of aluminum dust particles in the sputum as confirmatory etiologic evidence. Is there any valid evidence that aluminum dust, per se, may act either chemically or mechanically to excite an attack of acute bronchitis or other respiratory infection? I should appreciate a list of references dealing with this subject.

W. N. Dawson, M.D., Maryville, Tenn.

ANSWER.—American medical literature contains no convincing evidence of pulmonary or bronchial injury from exposure to aluminum dust. Occasional roentgenograms showing variable degrees of minor abnormality have been presented as evidence of a specific pneumonoconiosis due to aluminum. However, the only report of any group survey in this country is by Crombie, Blaisdell and McPherson (*Canadian M. A. J.* **50**:318 [April] 1944). They report no abnormal x-ray observations other than a few cases of healed tuberculosis in 125 men exposed to high concentrations of metallic aluminum powder from six to twenty-three years, with an average of twelve years. Certain German investigators have believed that there is a hazard, although available abstracts of their papers do not contain sufficient information on which to evaluate their conclusions. Goralewski and Kaeger (*Arch. Gewerbepath. u. Gewerbehyg.* **11**:102, 1941) state that inhalation of aluminum produces rapidly developing disease that may terminate fatally after eight months of exposure. These authors cite 4 cases presenting x-ray appearances "similar to silicosis" exposed one and a half to sixteen years with dyspnea, in 3 of which spontaneous pneumothorax developed. Koelsch, a competent and experienced industrial hygienist, opposes the view of a specific chemical poisoning. Summarizing his observations on 150 such workmen (*Beitr. z. Klin. d. Tuberk.* **97**:688, 1942) he concludes that poor ventilation incident to the blackout and excessive hours of work in young persons is responsible for the abnormal x-ray observations. His opinion of the nature of the condition is not quoted in abstract. Finally Jötten and Eickholt (Reichsarbeitsblatt, part III, No. 32, 1942, Arbeitsschuta No. 11) report animal experiments to prove that inhalation over a period of two hundred and thirty-six days results in heavy accumulations of dust in the lungs and associated lymph nodes with "desquamation of alveolar epithelium" and ultimate necrosis of the masses of cells. However, it required superimposed infection with the type I pneumococcus to produce much effect on the pulmonary stroma. Their illustrations strongly suggest the nonspecific reaction that can be produced by excessive concentrations of almost any inert dust. Gardner, Dworski and Delahant (*J. Indust. Hyg. & Toxicol.* **26**:211 [Sept.] 1944) did not observe serious effects from prolonged daily inhalations of metallic aluminum or amorphous aluminum hydrate. Injection of excessive quantities of the former into the blood stream blocked the mononuclear phagocytes, so that susceptibility to tuberculosis was increased. Smaller amounts did not have injurious action.

A recent paper by Hunter, Milton, Perry and Thompson (*Brit. J. Indust. Med.* **1**:159 [July] 1944) on the effects of aluminum and alumina on the lungs in grinders of duralumin airplane propellers indicates no evidence of pulmonary fibrosis in 92 workers. The films of 7 of the operators revealed certain abnormal shadows in the periphery of the lung fields but these "were not related to symptoms." Their exposure was heavy and 37 of the group had been employed for more than five years. The operation involved grinding and polishing the metallic alloy with aluminum oxide paper. It was the latter which constituted the major portion of the air borne dust; the metallic particles were so large that they settled and few remained suspended in the air.

INSUFFLATION TECHNIC FOR OVIDUCTS

To the Editor:—Would it be safe to use a regular Jarcho Pressometer in tubal insufflation using atmospheric air after proper sterilization of the apparatus and filtration of the air through sterile cotton placed in the graduated container? I have used this method for pneumothorax therapy but have not heard of the use of a similar technic in tubal insufflation.

A. E. Drexel, M.D., Alexandria, Va.

ANSWER.—Yes, it is absolutely safe.

TOXICITY OF CINCHOPHEN

To the Editor:—Please forward information on the toxicity of cinchophen. It has been stated that toxic symptoms develop only several months after taking the drug. Is this possible after taking only one or two doses of 7½ grains each? In other words, can cirrhosis or acute yellow atrophy of the liver develop in two or three months with no intermediate toxic symptoms? Are toxic symptoms infrequent enough to warrant the use of the drug at any time?

Major, M. C., A. U. S.

ANSWER.—A difference of opinion exists concerning the toxicity of cinchophen. Palmer and Woodall (Cinchophen—Is There a Safe Method of Administration? THE JOURNAL, Sept. 9, 1936, p. 760) in a review of the literature collected 191 cases of jaundice with a mortality of 46.8 per cent following the administration of cinchophen or its derivatives. In some instances small doses caused death; in contrast, large amounts have frequently been given for long periods without ill effects, and some physicians have used cinchophen extensively without having observed any fatalities from its use. The initial symptoms of hepatitis have frequently not appeared for weeks or months after the discontinuance of the drug; in these cases other causes for the hepatitis cannot be entirely excluded. Palmer and Woodall consider that these two factors, the variable relationship between the total dosage and the outcome and the variable length of time between the use of the drug and the appearance of symptoms, account for the varied opinions. Apparently even small doses of the drug given for brief periods may prove fatal, and hence one cannot rely on close observation with withdrawal of the drug on the first appearance of symptoms, for the hepatic injury frequently continues to progress. Palmer and Woodall conclude that there is no safe method for the administration of cinchophen.

BOILS ASSOCIATED WITH MENSTRUAL PERIOD

To the Editor:—A patient has boils within the gluteal folds at each menstrual period. They appear nowhere else on the body and only when the flow is well established. She is 30 years of age and has had the boils for the past twelve years. What is the cause of these boils; are there any references in the literature to the subject?

W. A. Brand, M.D., Redwood Falls, Minn.

ANSWER.—It is difficult to explain the exact relationship between the boils and the menstrual periods; therapy is unsatisfactory in cases like this. Hormone treatment helps a few women but by no means the majority. A simple medication which can be tried is ammonium chloride. Greenhill and Freed have shown how beneficial this substance is in cases of premenstrual tension including localized and generalized edema. The dose is 15 grains (0.97 Gm.) three times a day to be taken after meals for fourteen days before the onset of the next menses. During the time the patient takes the ammonium chloride, she should omit all sodium from her diet; this includes not only table salt but also alkalis, such as sodium bicarbonate.

NUMBER OF CENTENARIANS

To the Editor:—What percentage of people (men and women) in the United States have lived to be one hundred years or more?

J. P. Young, M.D., Chester, S. C.

ANSWER.—According to the returns of the 1940 Census, there were in the United States 3,679 persons 100 years old and over, of whom 1,338 were men and 2,341 women. Of these, 1,411 were white and 2,268 were nonwhite. Although the 1940 figure represents a decrease as compared with the 1930 return of 3,964 centenarians, comprising 1,180 whites and 2,784 nonwhites, the 1940 returns still undoubtedly exaggerate the number. Because persons of advanced age sometimes knowingly report themselves to the enumerator as older than they actually are or, not knowing their true ages, make exaggerated guesses, the reported number of centenarians is no doubt too high, particularly in the nonwhite population.

PARATYPHOID INFECTION

To the Editor:—I have a proved case of paratyphoid B infection with mild complaints. What can be done to cure the patient and protect her family? What can be done to prevent her from being a carrier?

A. L. Henrichsen, M.D., Van Nuys, Calif.

ANSWER.—In this case of paratyphoid B infection the assumption is made that the disease is caused by Salmonella schottmülleri. The treatment of this disease is the same as that for typhoid. Triple typhoid-paratyphoid vaccine may be given to contacts in the attempt to increase their resistance to this infection. A course of treatment with sulfadiazine may be instituted in an attempt to clear the carrier state. However, the sulfonamides have not been adequately tested in the treatment of Salmonella infections.